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UNIVERSITY OF NEW HAMPSHIRE

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HAM, NEW HAMPSHIRE

Evelyn H. Brettell

University of
New Hampshire
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make changes as voted by faculty 4-6-42

p. 149 See, not ses

43, 120 p. 248 Drop Jr after Schoolcraft

p. 141 Should be p. 149 + not 124

p. 213 PE 35. Should be 36

p. 132 Math 1, 2 5 cross

p. 132 Ind Math 21, 22 3 cross.

p. 130 Change F #2 (See exec. comm minutes 10-2

weekly letter 11-16-42 Don't list Convo any more. ✓

p. 125 [illegible]

5 new curriculums

promotions

p. [illegible] ✓

Bot. 54 [illegible] ✓

p. 147 [illegible] ✓

128 [illegible]

p. [illegible] ✓

[illegible] - letter from [illegible]

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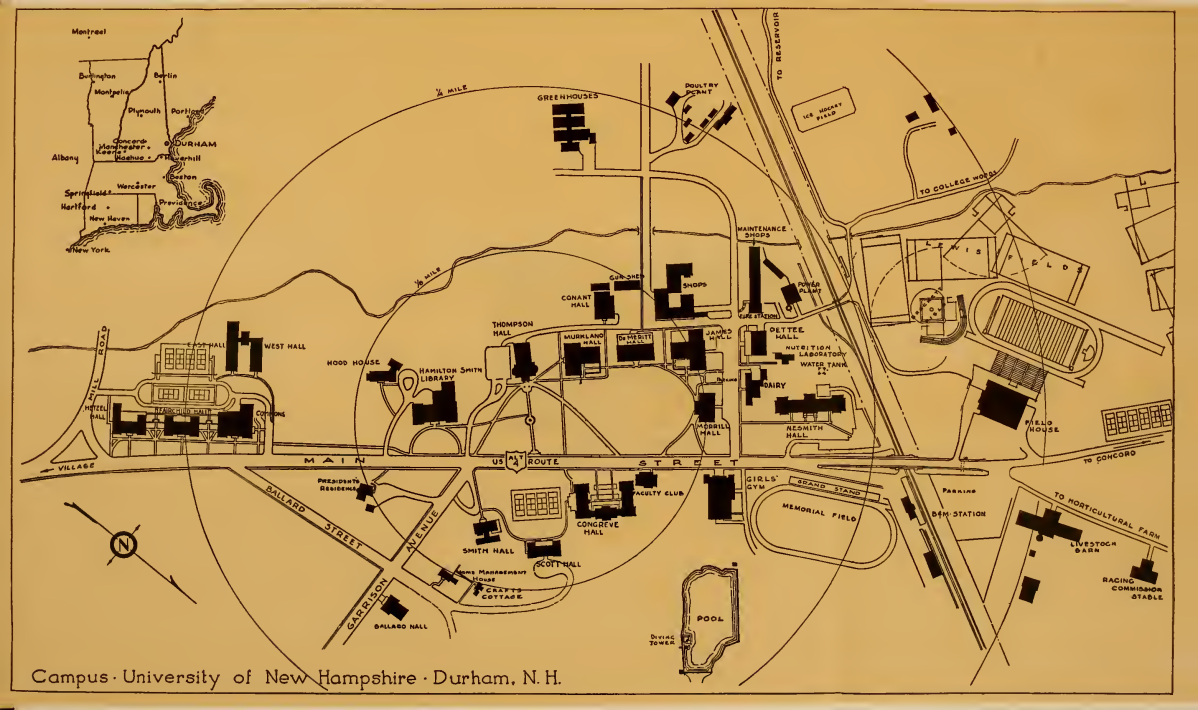

Campus · University of New Hampshire · Durham, N. H.

Durham, the home of the university, is an attractive village on the Portland division of the Boston and Maine railroad, sixty-two miles from Boston, fifty-four from Portland, and five from Dover, a city of 15,000 population. Good train service and excellent trunk-line motor roads make the university easily accessible from all parts of the state.

Durham, organized in 1732, is one of the historic towns of New Hampshire. In the early days it was the home of a prosperous ship-building industry. Situated at the head of tidewater on the Oyster river, it served as a distributing center for the interior of the state. During the Revolutionary war it was famous as the home of Major General John Sullivan. Near his home, in the village, the state has erected a fitting monument to his memory.

The University of New Hampshire and the New Hampshire College of Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

VOL. XXXIII FEBRUARY, 1941 NO. 8

BULLETIN *of the* UNIVERSITY *of* NEW HAMPSHIRE

Published each month by the University of New Hampshire, Durham, N. H. Entered as second class matter, August 5, 1907, at the post office at Durham, N. H., under the Act of Congress of July 16, 1894

THE UNIVERSITY BULLETIN INCLUDES:

The Catalog of the University Issue
The Report of the President Issue
The Financial Report Issue
The Catalog of the Summer School Issue
The Pictorial Booklet Issue
The Catalog of the Graduate School Issue

and other publications of the University

Correspondence regarding the university should be addressed to the following:

General Information, General Information.
Admission and Catalog, Registrar.
Alumni Activities, Alumni Office.
General Extension, Director of General Extension Service.
Graduate School, Dean of the Graduate School.
Summer School, Chairman, Summer School Committee.
Two-Year Course in Agriculture, Office of Applied Farming.

CALENDAR

1942

JULY

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UNIVERSITY CALENDAR

1942–43

1942 SUMMER SCHOOL

June 29	Monday	Registration Day, First Session
Aug. 7	Friday	First Session closes at 4 P.M.
Aug. 10	Monday	Second Session classes begin at 7:30 A.M.
Sept. 18	Friday	Second Session closes at 4 P.M.

FIRST SEMESTER

1942

Oct. 5	Monday	Freshman Week begins*
Oct. 9	Friday	Registration Day—Transfer students†
Oct. 12	Monday	Recitations begin at 8 A.M.
Oct. 14	Wednesday	Meeting of the University Senate at 4:15 P.M.
Oct. 15	Thursday	University Day—Afternoon holiday
Oct. 16	Friday	Annual Meeting of Board of Trustees
Oct. 17	Saturday	Dads' Day
Oct. 24	Saturday	Homecoming
Nov. 25	Wednesday	Thanksgiving Recess—Wed., 12:30 P.M. to Mon., 8 A.M.
Dec. 1	Tuesday	Mid-semester reports to be filed, 5 P.M.
Dec. 7	Monday	Second course of Agricultural one-half semester courses begins
Dec. 19	Saturday	Christmas Recess begins at 12:30 P.M.
Dec. 28	Monday	Christmas Recess ends at 8 A.M.

1943

Jan. 1	Friday	New Year's Day—Holiday
Jan. 13	Wednesday	Meeting of the University Senate at 4:15 P.M.
Jan. 15	Friday	Meeting of Board of Trustees
Jan. 18–29		Registration Period
Jan. 30	Saturday	First semester classes end, 12:30 P.M.

SECOND SEMESTER

Feb. 1	Monday	Recitations begin at 8 A.M.
Mar. 9	Tuesday	Town Meeting
Mar. 22	Monday	Second course of Agricultural one-half semester courses begins
Mar. 23	Tuesday	Mid-semester reports to be filed, 5 P.M.
Apr. 8	Thursday	Spring Recess begins at 12:30 P.M.
Apr. 12	Monday	Spring Recess ends at 8 A.M.
Apr. 14	Wednesday	Meeting of the University Senate at 4:15 P.M.
Apr. 16	Friday	Meeting of Board of Trustees
May 1	Saturday	Mothers' Day
May 3–14		Registration Period
May 15	Saturday	Classes end, 12:30 P.M.
May 16	Sunday	Baccalaureate Exercises, 10 A.M. Commencement at 2 P.M.
June 12	Saturday	Alumni Day—Meeting of Board of Trustees

1943 SUMMER SCHOOL

June 28–Aug. 6	First Session
Aug. 9–Sept. 17	Second Session

* See page 71.

† Former students not in attendance the second semester, 1941–42, will also register on Friday, October 9, 1942.

BOARD OF TRUSTEES

His Excellency, Governor Robert O. Blood, M.D., LL.D., *ex officio*

President Fred Engelhardt, A.M., PH.D., LL.D., *ex officio*

Andrew L. Felker, *Commissioner of Agriculture, ex officio*

Roy D. Hunter, LL.D., *President* — West Claremont
June 14, 1916 to June 30, 1945

Harry D. Sawyer — Woodstock
September 15, 1926 to June 30, 1942

James A. Wellman, B.S. — Manchester
January 26, 1928 to June 30, 1943

Robert T. Kingsbury — Keene
January 27, 1928 to June 30, 1944

George T. Hughes, A.M., LL.D. — Dover
July 1, 1931 to June 30, 1943

Jessie Doe — Rollinsford
July 1, 1932 to June 30, 1942

John T. Dallas, A.B., D.D., LL.D. — Concord
July 1, 1933 to June 30, 1945

Frank W. Randall, B.S., *Secretary* — Portsmouth
July 1, 1936 to June 30, 1944

*Henry F. Judkins, B.S. — White Plains, New York
July 1, 1939 to June 30, 1943

*Ernest W. Christensen, B.S. — Dover
July 1, 1940 to June 30, 1944

*Elected by Alumni.

OFFICERS OF ADMINISTRATION

FRED ENGELHARDT, A.M., PH.D., LL.D., *President of the University*

NORMAN ALEXANDER, PH.D., *Dean of Men*

EUGENE K. AUERBACH, M.B.A., *Alumni Secretary and Director, Bureau of Appointments*

EDWARD Y. BLEWETT, M.A., *Dean of the College of Liberal Arts*

GEORGE W. CASE, M.C.E., *Dean of the College of Technology and Director of the Engineering Experiment Station*

M. GALE EASTMAN, PH.D., *Dean of the College of Agriculture and Director of the Agricultural Experiment Station*

HARRY M. FITZ, *Acting Superintendent of Properties*

LEON W. HITCHCOCK, B.S., *Acting Dean of the College of Technology*

ERIC T. HUDDLESTON, B.ARCH., *Supervising Architect*

C. FLOYD JACKSON, B.A., M.S., *Director of the Biological Institute*

DAVID JOLLY, B.S., B.S. IN L.S., *Librarian*

RAYMOND C. MAGRATH, *Treasurer*

ARWOOD S. NORTHBY, PH.D., *Assistant to the President*

BROCKWAY D. ROBERTS, M.D., *University Physician*

EVERETT B. SACKETT, PH.D., *Registrar*

HAROLD H. SCUDDER, B.S., *Acting Dean of the College of Liberal Arts*

HERMON L. SLOBIN, PH.D., *Dean of the Graduate School*

HENRY B. STEVENS, A.B., *Acting Director of the General Extension Service*

RUTH J. WOODRUFF, PH.D., *Dean of Women*

ALBERT F. YEAGER, PH.D., *Associate Director of the Biological Institute*

THE UNIVERSITY FACULTY AND STAFFS *

ENGELHARDT, FRED, *President of the University*
Ph.B., Yale, 1908; A.M., Columbia, 1915; Ph.D., 1924; LL.D., University of Maine, 1940. Graduate study, Yale university, 1908–09; Harvard university, summers, 1909–10; University of Pennsylvania, 1916–17. Assistant instructor, Yale university, 1908–09; teacher and principal, public schools, New York, and private schools, Pennsylvania and Illinois until 1917; military service, 1917–19; inspector, elementary education, New York State department of education, 1919; director, Bureau of Administration, Pennsylvania State department of education, 1919–22; assistant dean in charge, College of Liberal Arts, University of Pittsburgh, 1922–24; professor of educational administration, College of Education, University of Minnesota, 1924–37. Present position, 1937–

HENDERSON, OREN V., *Registrar Emeritus*
Valparaiso university. Purchasing agent, New Hampshire college, 1914–20; executive secretary and registrar, 1920–21; registrar, 1921–39; present position, 1939–

ABELL, MAX F., *Assistant Professor of Agricultural Economics, Assistant Agricultural Economist, Agricultural Experiment Station; and Economist (Farm Management), Extension Service*
B.S., Cornell university, 1914; Ph.D., *ibid.*, 1924. Graduate student, Ohio State university, 1914–15. Student assistant, Cornell university, 1915–17; instructor and assistant professor, Connecticut Agricultural college, 1917–20; assistant professor, Massachusetts Agricultural college, 1920–26. Present position, 1926–

ADAMS, ELOI A., *Agricultural Agent in Strafford County*
B.S., University of New Hampshire, 1918. Practical farmer since 1918. Service department, 1919–28; present position, 1928–

ADAMS, JEAN, *Library Assistant*
B.A., University of New Hampshire, 1941. Present position, February 1, 1942–

AHERN, CORNELIUS J., *Agricultural Agent in Cheshire County*
B.S., University of New Hampshire, 1934. General Ice Cream corporation, 1934–36. Acting agricultural agent in Cheshire county, Extension service, 1936; present position, 1937–

ALEXANDER, NORMAN, *Dean of Men and Associate Professor of Economics*
B.A., University of North Dakota, 1919; M.A., *ibid.*, 1920; LL.B.,

*As of February 1, 1942, for the fiscal year beginning July 1, 1941.

Yale university, 1922; Ph.D., Columbia university, 1931. Professional study, second semester, 1940–41. Carnegie Teaching fellow, Columbia university, 1924–25. Principal of schools, Clyde, North Dakota, 1915–17. Instructor in economics, 1922–24; assistant professor, 1925–28; associate professor, 1928–29; present position, 1929–

ALLEN, FRED E., *Assistant Professor of Veterinary Science and Veterinarian, Agricultural Experiment Station*

B.S., University of New Hampshire, 1932; D.V.M., Ohio State university, 1936. Student instructor, F.E.R.A. program, Ohio State university, 1934–35; junior veterinarian, U.S.B.A.I., Columbia, South Carolina, 1936–37; veterinary food inspector, Columbus, Ohio, Board of Health, 1937–1940. Instructor in poultry husbandry and assistant poultry pathologist, Agricultural Experiment station, 1940–41; present position, September 1, 1941–

ANDREWS, ERMA L., *Assistant in Zoölogy*

B.A., University of New Hampshire, 1926; M.S., *ibid.*, 1941. Teacher, Milford, New Hampshire, High school, 1926–36; supervisor, Orchard Home school, summer, 1937. Secretary to officer in charge of freshmen, University of New Hampshire, 1938–39; present position, 1939–

ATKINSON, EDWARD R., *Assistant Professor of Chemistry*

B.S., Massachusetts Institute of Technology, 1933; Ph.D., *ibid.*, 1936. Assistant and teaching fellow, Massachusetts Institute of Technology, 1933–36; instructor in chemistry, Trinity college, 1936–38. Present position, 1938–

AUERBACH, EUGENE K., *Alumni Secretary and Director of the Bureau of Appointments*

B.A., University of New Hampshire, 1928; M.B.A., Harvard Graduate School of Business Administration, 1930; graduate study, Harvard Graduate School of Education, summer, 1937; Harvard Graduate School of Business Administration, 1939. Warehouse superintendent, The Great Atlantic and Pacific Tea company, 1930–35; assistant to the President, H. Tabenkan company, 1935–36. Assistant director, bureau of appointments, 1936; acting alumni secretary and acting director of the bureau of appointments, 1936–37; present position, 1937–

AURAND, LEONARD W., *Graduate Assistant in Agricultural and Biological Chemistry*

B.S., Pennsylvania State college, 1941. Present position, 1941–

AYER, PERLEY F., *Field Assistant and Specialist in Rural Organization and Recreation, Extension Service*

B.S., University of New Hampshire, 1922; Cornell university, 1935–36. Teacher and farmer at Country Life academy, Star, North Carolina, 1922–24; teacher, farm manager, and supervisor of boys' work at Pleasant Hill academy, Pleasant Hill, Tennessee, 1924–27. Boys' and Girls' Club agent in Merrimack County, 1927–36; instructor in agri-

cultural economics and specialist in rural organization and recreation in the Extension service, 1936–39; present position, 1939–

BABB, ANITA N., *Home Demonstration Agent in Rockingham County*
Diploma, Boston School of Domestic Science; certificate, dietetics training, Wilmington, Delaware; certificate, dietetics training, Boston, Massachusetts. Dietitian, Springfield, Mass., three years; teacher, Bangor, Maine, High school, one year; dietitian, Westfield, Mass., two and one-half years; dietitian, Camp Big Pine, eleven summers; home demonstration agent, Maine, three years; teacher, Spellman seminary, two years. Present position, 1934–

BABCOCK, DONALD C., *Professor of History*
B.A., University of Minnesota, 1907; M.A., *ibid.*, 1908; S.T.B., Boston university, 1912. Ministry, 1909–19. Assistant professor of history, 1918–21; associate professor of history and political science, 1921–25; present position, 1925–

BABEL, WILLIAM K., *Graduate Assistant in Botany*
B.S., University of Maine, 1941. Present position, 1941–

BACHELDER, JOSEPH E., JR., *Assistant Professor of Sociology*
B.A., Westminster college, 1933; Ph.D., Yale university, 1937. Research assistant in sociology, Institute of Human Relations, Yale university, 1934–36; Carnegie fellow, *ibid.*, 1933–34, and a fellow, 1935–36. Instructor in sociology, 1936–39; present position, 1939–

BARRACLOUGH, KENNETH E., *Assistant Professor of Forestry and Extension Forester*
B.S., New York State College of Forestry, Syracuse university, 1921; M.F., Harvard university, 1940. Blister rust agent with Bureau of Plant Industry, Rockingham county, New Hampshire, 1922–26; forester for Federal Emergency Relief Administration in the Northeastern States, office of Federal Extension service, April–June, 1935. Present position, 1926–

BARRATT, RAYMOND W., *Graduate Assistant in Botany, Agricultural Experiment Station*
B.S., Rutgers university, 1941. Present position, 1941–

BARSTOW, CAROLINE O., *Library Assistant*
Present position, 1916–

BARTON, PHILIP S., *Assistant Professor of Applied Farming*
B.S., University of New Hampshire, 1928; M.Ed., *ibid.*, 1938. Submaster and agricultural teacher, Colebrook academy, Colebrook, New Hampshire, 1928–34; headmaster, Weare, New Hampshire, High school, 1934–39. Instructor in agriculture—non-degree curriculum, applied farming, 1939–41; present position, 1941–

BATCHELDER, LYMAN J., *Instructor in Mechanical Engineering, Woodshop*
Perkins and Bancroft, architects, Haverhill, Mass., 1891–93; Batchelder and Guimon, store and bank fixtures, 1893–97; superintendent,

mill and box shop, 1897–1900; foreman, Haverhill Wood Heel company, Haverhill, Mass., 1900–03; foreman, woodshop, to chief draftsman, Laconia Car company, Laconia, N. H., 1903–15. Present position, 1915–

BAUER, GEORGE N., *Professor of Mathematics*
B.S., University of Minnesota, 1894; M.S., University of Iowa, 1898; Ph.D., Columbia university, 1900; Goettingen, Germany, 1907–08. Principal of high school, Montevideo, Minn., 1894–95; instructor in mathematics, University of Iowa, 1895–98; instructor, associate professor, professor, chairman of department of mathematics, University of Minnesota, 1900–20. Associate professor of mathematics, 1924–28; acting dean of men, 1928–29; professor of statistics, and officer in charge of freshmen, 1928–39; present position, 1939–

BEANE, DORIS, *Assistant Registrar*
A.B., Smith college, 1919; graduate study, Columbia university, summer, 1939, 1940, 1941. Stenographer, College of Technology, University of New Hampshire, 1923–26; secretary to the president, 1926–39; present position, 1939–

BECKWITH, MARION C., *Instructor in Physical Education for Women*
A.B., Oberlin college, 1935; M.Ed., University of New Hampshire, 1937. Graduate assistant in the department of physical education for women, 1935–37; present position, 1937–

BEECHER, MYRTIS E., *Home Demonstration Agent in Hillsborough County*
Graduate, Framingham Normal school, 1919; B.S., Framingham Teachers college, 1941. Teacher, Gardner, Mass., 1919–20; executive secretary, Girls' club, Gardner, 1920–24; home service department, Washburn Crosby company, 1924–26. Present position, 1926–

BEGGS, ANN F., *Assistant Professor of Home Economics and Extension Economist (Home Management)*
Nasson institute, 1913–15; University of Chicago, 1927. Teacher, Hopkinton, N. H., 1915–16; Rochester, N. H., 1916–17. Emergency home demonstration agent, Hillsborough county, 1917–19; home demonstration agent, Hillsborough county, 1919–20; assistant state home demonstration leader, 1922–29; present position, 1929–

BENNET, MARION B., *Club Agent in Merrimack County*
B.S. in Educ., State Teachers' college, Framingham, Mass., 1930. Teacher, Home Economics, Vineyard Haven, Mass., 1930–32; public welfare visitor, Springfield, Mass., 1933–35; teacher, evening school, Springfield, Mass., 1933–35; assistant county club agent, Springfield, Mass., 1935–37. Assistant Club Agent in Merrimack county, 1938–1940; present position, 1940–

BENNETT, FREDERICK D., *Instructor in Physics*
B.A., Oberlin college, 1937; M.Sc., Pennsylvania State college, 1939;

Ph.D., *ibid.*, 1941. Graduate assistant, Pennsylvania State college, 1937–41. Present position, 1941–

BERG, HARRY D., *Assistant Professor of History*
B.A., Iowa State Teachers college, 1931; M.A., University of Iowa, 1936; Ph.D., *ibid.*, 1940. Teacher, Monticello (Iowa) public schools, 1931–36; University High school, Iowa City, Iowa, 1936–40; assistant, University of Iowa, 1937–40. Present position, 1940–

BERGETHON, BJÖRNAR W., *Assistant Professor of Music*
B.M., Bush Conservatory of Music, 1929; A.M., Indiana university, 1936. Assistant supervisor of music, public schools, Mitchell, South Dakota, 1929–32; supervisor of music, Greencastle public schools, Ind., 1932–39; assistant professor of school music education, head of department and conductor university band and orchestra, DePauw university, Greencastle, Ind., 1932–39. Present position, 1939–

BERMAN, MILTON, *Assistant in Music*
B.S., New York university, 1940; M.A., *ibid.*, 1941. Present position, 1941–

BERZUNZA, JULIO, *Assistant Professor of Languages*
B.A., University of Oklahoma, 1921; M.A., University of Illinois, 1923. Assistant in Spanish, University of Oklahoma, 1919–21; assistant in Romance languages, University of Illinois, 1921–25; instructor in Spanish and Italian, University of Maine, 1926–28. Present position, 1928–

BINGHAM, SYLVESTER H., *Assistant Professor of English*
A.B., Dartmouth college, 1922; A.M., Harvard university, 1929; Ph.D., Yale university, 1937. Master, Taft school, 1926–28; instructor and assistant professor, Rollins college, 1928–33. Present position, 1936–

BISBEE, HARLAN M., *Associate Professor of Education*
A.B., Bowdoin college, 1898; A.M., Harvard university, 1905. Assistant, Rumford Falls, Maine, High school, 1898; principal, Brewer, Maine, High school, 1899–1904; principal, Robinson seminary, Exeter, N. H., 1905–28. Assistant professor of education, 1928–30; present position, 1930–

BITZ, NAOMI, *Supervisor of Hood House*
R.N., Graduate, Lankenau Hospital, Philadelphia, Pennsylvania. Instructor, directress of nurses, assistant hospital superintendent, Somerset Hospital, Somverville, New Jersey, 1929–41. Present position, January 6, 1942–

BLEWETT, EDWARD Y., *Dean of the College of Liberal Arts*
B.A., University of New Hampshire, 1926; M.A., Ohio State university, 1940. Ginn and company, Boston, 1926–27. Alumni secretary, 1927–29; alumni secretary and executive assistant, 1928–29; executive secretary, 1929–37; chairman, committee on summer school,

1938, 1939; assistant to the president, 1937–39; acting dean of the College of Liberal Arts, 1939–40; present position, 1940– (Entered military service, July 1, 1941–)

BLOOD, EDWARD J., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1935. U. S. Olympic team, Lake Placid, 1932; Germany, 1936. Present position, 1936–

BLOOD, PAUL T., *Assistant Professor of Agronomy and Assistant Agronomist, Agricultural Experiment Station*
B.S., New Hampshire college, 1921; M.S., University of New Hampshire, 1924. Graduate assistant in horticulture, University of New Hampshire, 1921–24. Granite State Nurseries, Exeter, N. H., 1924–28. Present position, 1928–

BODWELL, WALTER A., *Assistant Club Agent in Rockingham County*
B.S., University of New Hampshire, 1941. Present position, October 6, 1941–

BOURNE, ELIZABETH, *Club Agent in Rockingham County*
Diploma, Framingham Normal school, 1924. Teacher, household arts, Oak Bluffs, Mass., 1924–26. Present position, 1926–

BOWEN, IRMA G., *Assistant Professor of Home Economics*
B.S., University of Rochester, 1925; graduate of Mechanics Institute, Rochester, New York, 1911; Teachers college, Columbia university, 1915–17. Study, Boston Museum of Fine Arts; Grace Cornells' Art school; and Fellowcrafter's school, Boston; Universal School of Handicrafts, 1937. Teacher, Mechanics Institute, 1911–15; New York Institute for the Blind, 1915–16; University of Nebraska, 1917–18; University of Louisiana, 1918; government service, 1918–20; director of training shop, Fashion Park Clothing factory, 1920. Instructor in home economics, 1920–27; present position, 1927–

BOWLER, EDMOND W., *Professor of Civil Engineering*
S.B. in Sanitary Engineering, Massachusetts Institute of Technology, 1914. Assistant, Massachusetts Institute of Technology, 1914–15; topographer, U. S. Geological survey, 1913, 1915, 1916; second and first lieutenant, Engineer corps, U. S. A., Canal Zone, 1917–19; engineering expert, Boston law firm, 1919–20; instructor, Massachusetts Institute of Technology Summer camp, 1926, 1929. Assistant professor of mathematics, 1920–27; assistant professor of civil engineering, 1927–28; associate professor, 1928–31; present position, 1931–

BRADLEY, R. CLAUDE, *Assistant Professor of Poultry Husbandry and Extension Poultryman*
A.B., B.S., B.S. Educ., Central Missouri State Teachers college, 1920; M.S., Cornell university, 1921; Ph.D., *ibid.*, 1926. Instructor in residence and extension teaching in poultry husbandry, Cornell university, 1921–26; research specialist for Pacific Egg producers, New York City, 1927; Manager, Garber Leghorn farm, Enid, Oklahoma, 1927–31. Present position, 1931–

BRAMBLE, HARLAN P., *Instructor in Economics*
A.B., University of Oregon, 1937; A.M., *ibid.*, 1940. Graduate assistant, University of Oregon, 1937–39; instructor, City college of New York, 1939–41. Present position, 1941–January 24, 1942. (Resigned.)

BRECKENRIDGE, WALTER F., *Assistant County Agent in Forestry*
B.S., New York State college of Forestry, 1935. Eight years as forester with N. H., U. S. Forest Service, and Society for Protection of N. H. Forests. Present position, December 15, 1941–

BREEN, ROBERT E., *Graduate Assistant in Chemistry*
B.S., Lebanon Valley College, 1941. Present position, 1941–

BREWER, WILMA D., *Instructor in Home Economics*
B.S., Kansas State college, 1935; M.S., State College of Washington, 1939. Teacher, St. George (Kansas) Rural High school, 1935–37; instructor, Simpson college, Indianola (Iowa), 1939–40. Present position, 1940–

BROWN, FRED H., *Staff Sergeant, Detached Enlisted Men's List U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. army, 1915; service in A.E.F., France, from 1917; in action near Lunéville, Lorraine, August, 1918; participated in battles of St. Mihiel and the Meuse-Argonne, September and October, 1918; promoted sergeant, 1919; service on the Rhine, 1919; returned to the United States, 1922. R.O.T.C., University of New Hampshire, 1924; staff sergeant, 1937–

BRYANT, BURNELL V., *Major, Infantry, Assistant Professor of Military Science and Tactics*
B.S., University of New Hampshire, 1927; graduate, the Infantry school. Assistant commandant, New York Military academy, 1927–29; commandant, Freehold Military school, 1929–30; superintendent and commandant, Florida Military academy, 1931–38; special investigator District "A" C.C.C., Fort Bragg, North Carolina, 1938–39; tactical officer, Staunton Military academy, 1939–40. Present position, 1940–November 30, 1941. (Resigned.)

BUFFINGTON, ALBERT F., *Assistant Professor of Languages*
A.B., Bucknell university, 1928; A.M., Harvard university, 1932; Ph.D., *ibid.*, 1937. University of Berlin, Germany, summer 1926; University of Pennsylvania, Lauber Fellowship in German, 1930; University of Pittsburgh, Fellowship in German, 1930; University of Chicago Fellowship, 1930. Part-time instructor in German, Bucknell university, 1927–28; head of German department, Central High school, Scranton, Pa., 1928–30; part-time instructor in German, Harvard university, 1930–37. Instructor in languages, 1937–39; present position, 1939–

CALAHAN, C. LYMAN, *Graduate Assistant in Horticulture*
B.S., Kansas State college, 1937. Subdistrict officer for U. S. Forest

service, Prairie States Forestry project. Present position, 1940–September 22, 1941. (Resigned.)

CARLISLE, WINNIFRED A., *Home Demonstration Agent in Coos County*
B.S., University of New Hampshire, 1936. Clerk, University of New Hampshire, 1936–37; assistant to home demonstration agent, Hampshire County Extension service, 1938. Assistant home management supervisor, Farm Security administration, 1939. Present position, 1940–

CARROLL, HERBERT A., *Associate Professor of Psychology*
A.B., Bates college, 1923; A.M., Brown university, 1928; Ph.D., Columbia university, 1930. Instructor, James Millikin university, 1923–24; Durfee high school, Fall River, Massachusetts, 1925–28; assistant professor, University of Minnesota, 1930–36; visiting professor, Northwestern university, summer 1938; University of Maryland, summer 1940; Columbia university, summer 1941. Assistant professor of psychology, February 1–June 30, 1941; present position, 1941–

CASE, GEORGE W., *Dean of the College of Technology, Director of the Engineering Experiment Station, and Professor of Mechanical Engineering*
B.S. in C.E., Purdue university, 1905; M.C.E., Cornell university, 1912. Assistant professor of civil engineering, Purdue, 1907–13; assistant professor of sanitary engineering, 1913–14, associate professor of sanitary engineering, 1914–16, professor of sanitary engineering, 1916–22, University of Pittsburgh. Chief engineer, American City Engineering company, 1920–25. Dean of the College of Technology and professor of mechanical engineering, 1925–29; professor of civil engineering, 1926–29; present position, 1929– (Entered government service, November 4, 1940–)

CASEY, JOSEPH A., *Sergeant, Detached Enlisted Men's List, U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. Army, 1934; promoted corporal, 1936; promoted sergeant, 1937; stationed Fort H. G. Wright, N. Y., February, 1934 to November, 1939. Present position, 1939–

CAUGHEY, ROBERT A., *Research Assistant Professor of Industrial Engineering*
B.S., University of New Hampshire, 1935; M.S., Massachusetts State college, 1937. Research assistant in industrial engineering, 1937–41; present position, 1941–

CAWTHORNE, TED H., *Lieutenant Colonel, Infantry, Associate Professor of Military Science and Tactics*
U. S. Army officer, 1917–. Assistant professor of Military Science and Tactics, City college of New York, 1923–28. Present position, October 16, 1941–

CHADWICK, DAVID H., *Assistant in Chemistry*
B.S., University of New Hampshire, 1940. Graduate assistant in chemistry, 1940–41; present position, 1941–

CHAPMAN, DONALD H., *Associate Professor of Geology*
B.A., University of Michigan, 1927; M.A., *ibid.*, 1928; Ph.D., *ibid.*, 1931. Assistant in geology, University of Michigan, 1926–28; instructor in geology, Dartmouth college, 1928–30; part-time instructor in geology, University of Michigan, 1930–31; visiting professor of physiography and meteorology, department of geography of the school of geology, Louisiana State university, second semester, 1937–38. Instructor in geology, 1931–36; assistant professor of geology, 1936–41; present position, 1941–

CHARLES, T. BURR, *Professor of Poultry Husbandry and Poultry Husbandman, Agricultural Experiment Station*
B.S., Cornell university, 1915; M.S., *ibid.*, 1938. Principal, graded schools, Alpine, N. Y., 1909–10; assistant and instructor, Cornell university, 1913–16. Practical poultryman in New York state, 1916–20, 1923–26. Instructor and assistant professor, Pennsylvania State college, 1920–23; associate professor, 1926–28. Present position, 1928–

CLAPP, HENRY S., *Instructor in Ornamental Horticulture, Supervising Landscape Architect, Assistant Horticulturist in Home Gardening (Ornamental), Extension Service, and Assistant Horticulturist, Agricultural Experiment Station*
B.S., Cornell university, 1931; M.S., *ibid.*, 1939; graduate study, Harvard School of Landscape Architecture, 1935–36; Harvard university, 1939–40. Nurseryman, Long Island State Park commission, Islip, New York, 1930. Instructor in ornamental horticulture and supervising landscape architect, 1931–41; present position, January 1, 1942–

CLARK, LORIN D., *Graduate Assistant in Geology*
B.S., State college of Washington, 1941. Present position, 1941–December 31, 1941. (Resigned.)

COATES, WILLIAM H., *Instructor in Agronomy and Assistant in the Soil Survey, Agricultural Experiment Station*
B.S. in Engineering, University of New Hampshire, 1934; B.S. in Agric., *ibid.*, 1938. Present position, 1934–September 19, 1941. (Resigned.)

COLBURN, HAZEL A., *Assistant Club Agent in Hillsborough County*
B.S., University of New Hampshire, 1935. Present position, 1935–

COLBY, STANLEY W., *Agricultural Agent in Sullivan County*
B.S., University of New Hampshire, 1934; graduate study, Cornell university, summer, 1939. Research field assistant, University of New Hampshire, July to December, 1934; county agent, Windsor

County Farm bureau and Vermont Extension service, 1934–40. Present position, December 1, 1940–

COLOVOS, NICHOLAS F., *Assistant Professor of Animal Husbandry and Assistant in Animal Husbandry, Agricultural Experiment Station*
B.S., University of New Hampshire, 1927; M.S., *ibid.*, 1931; graduate study, Cornell university, 1938–39. Present position, 1928–

CONKLIN, JAMES G., *Assistant Professor of Entomology and Assistant Entomologist, Agricultural Experiment Station*
B.S., Connecticut Agricultural college, 1926; M.S., University of New Hampshire, 1929; Ph.D., Ohio State university, 1941. U.S.D.A., Bureau of Entomology, 1926–28. Graduate assistant, Ohio State university, 1929–31. Field assistant, U.S.D.A., Bureau of Entomology, summer, 1930. Instructor in entomology and assistant entomologist of the Agricultural Experiment station, 1931–39; present position, 1939–

CONON, OLGA, *Instructor in Economics*
B.A., University of New Hampshire, 1939; M.Ed., *ibid.*, 1941. Assistant, summer school, 1939; graduate assistant in economics, 1939–41; present position, 1941–

COPPLESTONE, WESLEY, *Assistant in Music*
A.B., Boston university, 1931. Graduate study, Boston university, 1931–33. Private teacher of singing, concert singer. Present position, 1941–

CORBETT, ALAN C., *Instructor in Poultry Husbandry and Assistant Poultry Pathologist, Agricultural Experiment Station*
B.S., University of Maine, 1936; M.S., *ibid.*, 1937; D.V.M., Michigan state college, 1940. Instructor in bacteriology, Michigan State college, 1940–41. Present position, September 15, 1941–

CORNTHWAITE, SCHUYLER E., *Graduate Assistant in History*
A.B., Dartmouth college, 1935; LL.B., Albany Law school, 1938. Graduate study, Albany State Teachers college, summer 1940; University of New Hampshire, 1940–41. Employed by law firm, 1938–40. Present position, 1941–

CORTEZ, EDMUND A., *Assistant Professor of English*
B.A., Taylor university, 1923; B.O., Asbury college, 1924; B.D., Asbury Theological seminary, 1925; M.A., Columbia university, 1926; Ed.M., Harvard university, 1927; graduate study, Columbia university, summers of 1925, 1926; Louisiana State university, first semester, 1940–41. Organizer and director of social-religious groups, Taylor university, 1921–23; associate in dramatics and public speaking, Asbury college, 1924–25; part-time instructor in declamation, Phillips Exeter academy, 1928–33. Instructor in English, 1927–29; present position, 1929–

COULTER, CHARLES W., *Professor of Sociology*
B.A., University of Toronto, 1908; B.D., Victoria college, 1909; M.A., Yale university, 1910; Ph.D., *ibid.*, 1914. Professional study, first semester, 1941–42. Assistant in economics, Yale university, 1914; instructor in sociology, Western Reserve university, 1915–19; assistant professor, Western Reserve university, 1919–23; exchange professor, University of Nanking, fall semester, 1922–23; Princeton-in-Peking lecturer, University of Peking, spring semester, 1922–23; Summer schools: Lakeside, 1926, 27; Hampton institute, 1928; Western Reserve university, 1929; visiting professor to universities of South Africa under Carnegie corporation, 1929–30; professor of sociology, Ohio Wesleyan university, 1923–34. Present position, 1934–

CRECELIUS, H. GILBERT, *Instructor in Bacteriology*
B.A., University of South Dakota, 1934; M.A., *ibid.*, 1937; Ph.D., Yale university, 1941. Bacteriologist, South Dakota Health Laboratory, 1934–35, 1936–37; research director, South Dakota State Planning Board, 1935–36. Present position, 1941–

DAGGETT, ALBERT F., *Associate Professor of Chemistry*
B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1930; Ph.D., Columbia university, 1934. Instructor, University of New Hampshire, 1928–31; research associate, Columbia university, first semester, 1934–35; instructor, Hunter college, second semester and summer session, 1934–35. Instructor in chemistry, 1935–37; assistant professor of chemistry, 1937–41; present position, 1941–

DART, J. DORIS, *Assistant Librarian and Cataloguer*
B.A., McGill university, 1921; graduate student, Yale university, 1921–23; certificate, Pratt Institute School of Library Science, 1925. Cataloguer, Yale university library, 1926–29. Acting librarian, Feb. 6–March 21, 1932, first semester, 1939–40, July–August, 1940; head cataloguer, 1929–38; present position, 1938–

DAVIS, HENRY A., *Instructor in Agricultural and Biological Chemistry and Assistant in Agricultural and Biological Chemistry, Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1934. Graduate assistant in agricultural and biological chemistry in the Agricultural Experiment station, 1932–34; present position, 1934–

DAVIS, MARION S., *Home Demonstration Agent in Sullivan County*
B.E., Keene Normal school, 1929. Teacher of home economics, Springfield, Vermont, High school, 1929–37. Present position, 1937–

DAWSON, CHARLES O., *Assistant Professor of Civil Engineering*
B.C.E., Ohio State university, 1930; M.S., *ibid.*, 1940; study, Massachusetts Institute of Technology, summer, 1938. Registered Professional Civil Engineer and Registered Surveyor, State of Ohio. Instructor, Ohio State university, Civil Engineering Summer camp, 1940. Instructor in civil engineering, 1930–40; present position, 1940–

DEGLER, CARROLL M., *Assistant Professor of Economics*
A.B., University of Kansas, 1925; M.B.A., New York university, 1927; graduate study, Columbia university, summers, 1929, 31, 32 and 33. Student assistant, University of Kansas, 1923–25; graduate study and assistant instructor, New York university, 1927–28 and 1936–37. Instructor in economics, 1928–36; present position, 1936–

DEMOS, MILTIADES S., *Assistant Professor of Mathematics*
B.S., Robert college, Constantinople, Turkey, 1922; Ph.D., Harvard university, 1926. Sheldon Traveling fellow of Harvard university, Munich, Germany, 1926–27. Instructor, Harvard university, 1927–28; instructor, Columbia university, 1928–31. Present position, 1931–

DEQUOY, STANLEY W., *Club Agent in Grafton County*
Graduate, Essex County Agricultural school, 1917. Poultryman, North Andover, Mass., 1918–19; egg-laying contest poultryman, Essex County Agricultural school, 1920–21; Club agent, Essex county, Mass., 1921–26. Present position, 1926–November 15, 1941. (Resigned.)

DICKERMAN, EDMUND H., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1932. Employed by Arthur S. Brown Manufacturing Company, Tilton, New Hampshire, 1937–41. Research assistant in the engineering experiment station, 1935–37; present position, March 17, 1941–

DIXON, PAUL J., *Club Agent in Carroll County*
B.S., University of New Hampshire, 1928; M.A., University of Maryland, 1939; graduate work, U. S. Dept. of Agriculture, 1938–39. Present position, 1928–September 6, 1941. (Resigned.)

DOBROVOLNY, CHARLES G., *Assistant Professor of Zoölogy*
B.A., University of Montana, 1928; M.S., Kansas State College of Agriculture and Applied Science, 1933; Ph.D., University of Michigan, 1938. Assistant, University of Montana, 1925–28; instructor, high school, Filer, Idaho, 1928–29; Kansas State college, 1929–35; University of Michigan, 1935–40. Present position, 1940–

DONOVAN, EDWARD T., *Assistant Professor of Mechanical Engineering*
B.S., University of Wisconsin, 1921. Assistant, University of Wisconsin, 1921; assistant and instructor, Purdue university, 1921–24; assistant engineer, Chicago, Milwaukee and St. Paul railway, 1924–26. Present position, 1926–

DOUGAL, ANTHONY F., *Assistant Professor of Physical Education and Athletics*
B.S., Temple university, 1933; M.A., Columbia university, 1940. Head of Physical Education and Commercial departments, Smethport, Pennsylvania, 1933–36; assistant director of athletics, West Texas State Teachers college, 1937–39. Instructor in physical education and athletics, 1939–41; present position, 1941–

DOUGHERTY, LAWRENCE A., *Assistant Professor of Agricultural Economics and Extension Economist in Marketing*
B.S., Purdue university, 1921; graduate study, University of Michigan, summers, 1922, 26; University of Minnesota, summer, 1928, and spring and summer quarters, 1930; University of New Hampshire, summer, 1932. High school science teacher, Iowa and Indiana, 1921–24; biology teacher, Connerville, Indiana, Senior High school, 1924–26; field agent, Bureau of Plant Industry, U. S. D. A., summers, 1923, 24, 25; assistant professor in science, Montana state normal college, 1927–29. Present position, 1930–

DUNN, STUART, *Assistant Professor of Botany and Plant Physiologist, Agricultural Experiment Station*
B.S., University of Minnesota, 1923; M.S., Iowa State college, 1925; Ph.D., University of Minnesota, 1931. Assistant in plant physiology, University of Minnesota, 1923–24; fellow in botany, Iowa State college, 1924–25; instructor in plant physiology, Iowa State college, 1925–26. Instructor in botany and assistant botanist of the Experiment station, 1926–37; assistant professor of botany and assistant botanist, Agricultural Experiment station, 1937–41; present position, 1941–

DURIE, JOHN D., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1938; M.Ed., *ibid.*, 1940. Graduate assistant in physical education and athletics, 1938–40; present position, 1940– (Entered military service, July 1, 1941–)

EADIE, WILLIAM R., *Assistant Professor of Zoölogy*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1933; Ph.D. Cornell University, 1939. Assistant in zoölogy, University of New Hampshire, 1933–35; instructor in zoölogy, 1935–39; present position, 1939–

EASTMAN, M. GALE, *Dean of the College of Agriculture and Director of the Agricultural Experiment Station*
B.S., New Hampshire college, 1913; M.S., Cornell university, 1916; Ph.D., *ibid.*, 1931. County agent, Sullivan county, New Hampshire, 1913–14; assistant commissioner of agriculture, State House, Concord, N. H., 1914–15; superintendent, Willow farm, New London, N. H., 1916–18. Assistant professor of agronomy and assistant agronomist of the Experiment station, 1918–25; associate professor of agronomy and associate agronomist of the Experiment station, 1925–29; professor of agricultural economics and associate agricultural economist of the Experiment station, 1929–31; associate dean, 1931–33; dean of the College of Agriculture and professor of agricultural economics, 1933–38; dean of the College of Agriculture and vice-director of the Agricultural Experiment station, 1938–39; present position, 1939–

EATON, FLORENCE L., *Assistant in Nursing*
R.N., Long Island College hospital, Brooklyn, New York, 1941. Present position, 1941–

EKDAHL, ADOLPH G., *Associate Professor of Psychology*
D.M.D., Tufts College Dental school, 1912; A.B., Clark college, 1919; A.M., *ibid.*, 1920; Ph.D., Ohio State university, 1925. Assistant and scholar in psychology, Clark university, 1919–20; instructor in psychology, Syracuse university, 1920–22; assistant professor of psychology, *ibid.*, 1922–23; instructor in psychology, Ohio State university, 1923–25; professor of education, Howard college Summer school, 1926, 27, and 28. Assistant professor of education, 1926–28; associate professor of education and psychology, 1928–29; associate professor of philosophy and psychology, 1929–34; present position, 1934–

ELLIS, ELIZABETH E., *Assistant Professor of Home Economics and Extension Nutritionist*
B.S., Teachers college, Columbia university, 1927; M.A., *ibid.*, 1929. Graduate in home economics, Normal school, Truro, Nova Scotia, 1916; home economics diploma, MacDonald institute, Guelph, Ontario, 1920. Instructor, School of Home Economics, Truro; Halifax Ladies college, Nova Scotia; Soldier Settlement board, Woman's institute, and the Halifax Health center, 1916–27. Present position, 1929–

ELLSWORTH, CLIFFORD C., *Club Agent in Strafford County*
B.S., University of New Hampshire, 1935. Acting Boys' and Girls' club agent in Strafford county, 1938–39; assistant club agent in Rockingham county, 1935–38; 1939–41; present position, October 1, 1941–

EPPELSHEIMER, DANIEL S., *Research Professor of Industrial Engineering*
B.S., Harvard university, 1932; D.Sc., *ibid.*, 1935. Research metallurgist with the Union Carbide and Carbon Research laboratory, Niagara Falls, N. Y., 1935–38. Research associate professor of industrial engineering, 1938–39; acting director of the Engineering Experiment station, November, 1940–; present position, 1939–

ERIKSON, ARVAL L., *Assistant Professor of Agricultural Economics, Assistant Agricultural Economist, and Assistant to the Director, Agricultural Experiment Station*
B.S., University of Idaho, 1937; M.S., Iowa State college, 1939; graduate study, *ibid.*, 1939–40. Graduate assistant, Iowa State college, 1937–39; assistant agricultural economist, University of Idaho, 1939; research assistant, Iowa State college, 1939–40. Present position, 1940–

EVANS, NELL W., *Instructor in Physical Education for Women*
B.S. in P.E., Sargent college of Boston university, 1935; M.Ed. University of New Hampshire, 1937. Graduate assistant in physical education for women, University of New Hampshire, 1935–37; present position, 1937–

FALT, MARY H., *Reference Librarian*
B.A., Acadia, 1926; B.S., Simmons college, School of Library Science,

1927. Circulation Librarian, 1927–40; present position, 1940–September 30, 1941. (Resigned.)

FENTON, AUSTEN W., *Assistant Club Agent in Merrimack County*
B.A., University of New Hampshire, 1932. Coach, Weare High school, 1935–36; field representative and secretary-treasurer, Farm Credit administration, 1938–41. Present position, February 1, 1942–

FIELDING, GEORGE B., *Graduate Assistant in Physical Education and Athletics*
B.S., Culver Stockton college, 1940. Present position, 1940–

FIRMAN, CHARLES E., *Assistant County Agent, Hillsborough County*
St. Anselm college, 1938–41. Hillsborough County Rural Organization and Recreation Agent, Extension Service and W.P.A. coöperating, 1936–41. Present position, September 1, 1941–

FITZ, HARRY M., *Acting Superintendent of Properties*
Member of Plant Maintenance Department, 1921–41; present position, 1941–

FLOYD, JOHN A., *Assistant Professor of Languages*
A.B., Boston university 1928; Diplôme de Français; Degré Supérieur, University of Dijon, France, 1929; M.A., Middlebury college, 1937. Instructor in languages, 1929–39; present position, 1939–

FORBES, GEORGE F., *Assistant in Physics*
B.S., Northeastern university, 1939. Graduate study, Harvard university, 1940–41. Teaching fellow, St. Louis university, 1939–40. Present position, 1941–

FOULKROD, GEORGE M., *Assistant Professor of Agricultural Engineering and Assistant Agricultural Engineer, Extension Service*
B.S., Pennsylvania State college, 1919; B.S. in agricultural engineering, *ibid.*, 1931; M.S. in agricultural education, *ibid.*, 1931. Instructor and assistant professor, Pennsylvania State college, 1919–31. Instructor in agricultural engineering and assistant agricultural engineer in the Experiment station, 1933–36; present position, 1936–

FUNKHOUSER, JAMES A., *Associate Professor of Chemistry*
B.S., Carnegie Institute of Technology, 1925; Ph.D., Ohio State university, 1930. Professional study, first semester, 1941–42. Instructor, Germantown, Ohio, High school, 1925–26; assistant and instructor, Ohio State university, 1926–30. Assistant professor of chemistry, 1930–38; present position, 1938–

GADBOIS, IRENE L., *Instructor in English*
B.A., University of New Hampshire, 1929; M.A., Columbia university, 1930; Ph.D., Boston university, 1935. Assistant, Boston university, 1934–35. Assistant in English, January 1, 1940–January 31, 1941; present position, 1941–

GAGE, GEORGE W., *Captain, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
A.B., University of Pittsburgh, 1929; M.Ed., *ibid.*, 1938. Principal, Bell Township High school, Salina, Pennsylvania, 1929–32; supervising principal, Parker City schools, Parkers Landing, Pennsylvania, 1932–35; Evans City, Pennsylvania, schools, 1935–36; Zelienople, Pennsylvania, school district, 1936–40. Present position, 1940–

GALANES, PETER E., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1940. Present position, 1940–(Entered military service, January 5, 1941–)

GARLAND, MARTHA L., *Instructor in Home Economics*
B.S., University of New Hampshire, 1939. Student dietitian, State Hospital, Concord, New Hampshire, 1939–40; assistant dietitian, Henry Heywood Hospital, Gardner, Massachusetts, 1940, assistant dietitian, University of New Hampshire Commons, January 1941–June 1941. Present position, 1941–

GERAGHTY, MARY L., *Instructor in Agricultural Economics and Research Assistant in Agricultural Economics, Agricultural Experiment Station*
A.B., Mt. Holyoke college, 1933. Clerk, actuarial department, Massachusetts Mutual Life Insurance company, 1934–37. Present position, 1937–December 20, 1941. (Resigned.)

GETCHELL, EDWARD L., *Associate Professor of Mechanical Engineering*
B.S., University of Maine, 1914; E.E., *ibid.*, 1920. Engineering staff, Stone & Webster, 1914–15; assistant superintendent, Cave Welding & Manufacturing company, Boston, 1915–16; submaster, Lawrence academy, Groton, Mass., 1916; principal, Westport High school, 1917. Instructor in mechanical engineering, 1917; in charge of auto mechanics and gas engine section in connection with vocational work at New Hampshire college, United States army training detachment, 1918; acting head of department, 1918–19; assistant professor of mechanical engineering, 1918–29; present position, 1929–

GIBBS, KENNETH E., *Club Agent in Hillsborough County*
B.S., University of Maine, 1923. State forester, Orono, Maine, summer of 1923; agricultural teacher, Leavitt institute, Turner Center, Maine, 1923–25. Present position, 1925–

GLOVER, LEON C., *Assistant Professor of Entomology and Research Assistant in Entomology, Agricultural Experiment Station*
B.S., University of New Hampshire, 1923; M.S., *ibid.*, 1928; Ph.D., Iowa State college, 1936. Present position, 1928–

GRANT, KENNETH, E., *Graduate Assistant in Agronomy, Agricultural Experiment Station*
B.S., University of New Hampshire, 1941. Present position, July 25, 1941–December 20, 1941. (Resigned.)

GRANT, ROBERT H., *Assistant Professor of English*
A.B., Bowdoin college, 1933. Student, University of New Hampshire, summers, 1934, 36; M.A., Columbia university, 1940. Teacher, Gardiner, Maine, High school, 1933–36; Laconia, New Hampshire, High school, 1936–37. Instructor in English, 1937–41; present position, 1941–

GRAY, RENA, *Home Demonstration Agent in Belknap County*
B.S., Simmons college, 1916; A.M., Columbia university, 1928. Student, University of Wisconsin, 1916–17; summer school, University of Tennessee, 1938. Home economics teacher, Massachusetts, New Hampshire, and Hawaii, 1917–27. Present position, 1928–

GRIGAUT, PAUL L., *Assistant Professor of Languages*
B. ès L., 1926, Certifié de Licence (Sorbonne); Diplômé de l'Ecole du Louvre, 1932. Lycée Henri IV, Paris, 1917–24; University of Paris, Sorbonne, 1924–27, 1931–32; National School of the Louvre Museum, Paris, 1925–27. University of Chicago, second semester, 1940–41. Instructor in languages, 1927–30; present position, 1930–

GRINNELL, HAROLD C., *Assistant Professor of Agricultural Economics, Assistant to the Dean, College of Agriculture, and Assistant Agricultural Economist, Agricultural Experiment Station*
B.S., Cornell university, 1921; M.S., *ibid.*, 1930; Ph.D., *ibid.*, 1941. Dairy farmer, Broadalbin, New York, 1921–28; field agent, Federal Farm board, 1930–31; acting agricultural economist, University of Vermont, 1931–32. Assistant professor of agricultural economics and assistant agricultural economist in the Agricultural Experiment station, 1932–39; present position, 1939–

HADDOCK, JAY L., *Assistant Professor of Agronomy and Extension Agronomist*
B.S., Brigham Young university, 1930; M.S., Massachusetts State college, 1932; graduate study, Iowa State college, 1939–40. Instructor, agronomy department, Massachusetts State college, 1930–35. Present position, 1935–

HALL, CLYDE N., *District County Agent, Extension Service*
B.S., University of Maine, 1923; M.S., University of Vermont, 1941. Teacher, New York, 1923–25; Maine, 1925–28. Milk tester, Mass., 1929–32; New Hampshire, 1932–33. Assistant professor of dairy husbandry and assistant extension dairyman, 1933–41; present position, 1941–

HALL, HARRY H., *Assistant Professor of Physics*
B.S., Union college, 1926; Ph.D., Harvard university, 1934. Instructor, American University of Beirut, 1926–29; instructor and tutor, Harvard university, 1934–37; instructor, *ibid.*, summer, 1935; instructor, Radcliffe college, 1933–35; tutor, *ibid.*, 1935–37; testing equipment development engineer, Western Electric company, 1937–

40. Present position, 1940– (Entered government service, July 1, 1941–)

HALL, MARY A., *Club Agent in Cheshire County*
B.Ed., Keene Normal school, 1929. Teacher, high school, Canaan, New Hampshire, 1929–33. Recreation advisor, Cheshire county, 1934–37; present position, 1937–

HALPIN, ROBERT B., *Instructor in Poultry Husbandry, Record of Performance Supervisor and Research Assistant in Poultry Husbandry, Agricultural Experiment Station*
B.S., University of Wisconsin, 1937; graduate study, Iowa State college, 1937–40. Graduate assistant, Iowa State college, 1937–40. Present position, 1941– (Entered military service, September 27, 1941–)

HANGAS, SIGRID H., *Instructor in Home Economics and Assistant Manager of Dining Hall*
B.S., University of New Hampshire, 1935. Manager of diet kitchen, New Hampshire State hospital, February 1936–39. Present position, 1939–August 15, 1941. (Resigned.)

HANSON, ARNOLD E., *Associate Professor of Industrial Education*
Ph.B., University of Wisconsin, 1926; Ph.M., *ibid.*, 1929; Ph.D., *ibid.*, 1940. Supervising principal, Butternut (Wisconsin) public schools, 1922–24; instructor, Madison Vocational school, 1925–27; coördinator, *ibid.*, 1927–40. Industrial Education Survey, February to June, 1940; associate professor of vocational education and supervisor of N.Y.A., 1940–41; present position, 1941–

HARDY, HOWARD C., *Instructor in Physics*
A.B., West Virginia university, 1936; M.S., *ibid.*, 1938; Ph.D., Pennsylvania State college, 1941. Graduate assistant in physics, West Virginia university, 1936–38; Pennsylvania State college, 1938–41; instructor in R.O.T.C., West Virginia university, 1936–37. Present position, 1941–

HARINGA, RAYMOND, *Graduate Assistant in Zoölogy*
A.B., Clark university, 1939; graduate study, Calvin college, Grand Rapids, Michigan, 1939–40. Present position, 1940–

HARPER, ROBERT H., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., Purdue university, 1940. Present position, 1940–

HARTMANN, GREGORY K., *Assistant Professor of Physics*
B.S., California Institute of Technology, 1933; B.A. Oxford university, Oxford, England, 1936; Ph.D., Brown university, 1939. Assistant, Brown university, 1936–38. Present position, 1939– (Entered government service, September 1, 1941–)

HARTWELL, WILLIAM H., *Assistant Professor of Physics*
B.S., Boston university, 1924; M.A., Wesleyan university, 1927.

Assistant in physics, Boston university, 1924–26; assistant in physics, Wesleyan university, 1926–27; instructor in physics, University of Maine, 1927–28; assistant in physics, Harvard university, 1928–29. Instructor in physics, 1929–33; present position 1933–

HARVEY, LASHLEY G., *Assistant Professor of Government*
A.B., William Jewell college, 1925; A.M., Leland Stanford, Jr., university, 1930; Ph.D., Harvard university, 1942. Teacher, social studies, high schools, Missouri, Montana and Wyoming, 1923–29; assistant in political science, Leland Stanford, Jr., university, 1929–30: instructor to associate professor, political science and economics, Adams State Teachers' college, Colorado, 1930–36; Legislative Interim Committees on County Government and State Welfare department, Colorado, 1934. Executive secretary, Bureau of Government Research, 1939–. Assistant professor of government and education, 1938–39; present position, 1939–

HAUBRICH, WILLIAM P., *Assistant Horticulturist in Home Gardening, Extension Service, and Assistant in Horticulture, Agricultural Experiment Station*
B.S., University of New Hampshire, 1939; M.S., *ibid.*, 1941. Graduate assistant in horticulture, 1939–40; assistant in horticulture, Extension service, 1941; present position, January 1, 1942–

HAUSLEIN, JOHN D., *Assistant Professor of Economics*
B.A., Yale university, 1916; M.A., Yale university, 1920. Laboratory assistant in accounting, Yale university, 1917; junior accountant, Whittlesey, Wythes & Wilson, New York city, 1919; field auditor, U. S. Housing corporation, Bridgeport, Connecticut, 1920; instructor in accounting, Yale university, 1921–26. Present position, 1926–

HEINKE, MELVIN L., *Graduate Assistant in Geology, Extension Service*
B.A., Lawrence college, 1941. Present position, 1941–

HEMPLER, ORVAL F., *Graduate Assistant in the Department of Architecture*
B.F.A., University of Colorado, 1938; Master's Certificate, University of Iowa, 1940. Frank Alva Parsons Memorial Scholarship, Paris, France; traveling fellowship, Italy, 1938–39. Instructor, Boulder, Colorado, Art Gallery, summers 1937, 1938; Boulder high school, 1938. Present position, 1941–

HENNESSY, WILLIAM G., *Associate Professor of English*
A.B., Boston university, 1916; A.M., Boston university, 1924. Professional stage manager and drama director, 1916, 1919–21; A.E.F., U.S.A., 1917–19; instructor in English and history, Hampton institute, Virginia, 1921; instructor in English and history, Northampton, Mass., high school, 1921–23; associate professor, Boston university, Summer school, 1926 and 1928. Public speaking, coach of debating, 1923–25; director of dramatics, 1923–. Instructor in English, 1923–24; assistant professor of English, 1924–28; present position, 1928–

HEPLER, JESSE R., *Associate Professor of Horticulture and Extension Horticulturist in Home Gardening*

B.S., Pennsylvania State college, 1911; M.S., University of Wisconsin, 1922. Instructor and graduate student in horticulture, University of Wisconsin, 1912–16. Assistant professor of horticulture and assistant horticulturist of the Experiment station, 1917–31; acting head of department of horticulture, 1938–39; associate professor of horticulture and associate horticulturist, Agricultural Experiment station, 1931–41; present position, January 1, 1942–

HERR, CLARENCE S., *District County Agent, Extension Service*

B.S., Pennsylvania State college, 1925; M.S., Harvard university, 1930. U. S. Forest service, White Mountain National Forest, N. H., 1920–21; camp director, boys' camp, Shawnee-on-Delaware, Pa., seasons 1923, 24, 25; U. S. Forest service, Allegheny National Forest, Pa., 1925–26; blister rust agent with Bureau of Plant Industry, Hillsborough county, N. H., 1926–28. Assistant county agent in Coos and Grafton counties, 1928–36; acting extension forester, April–June, 1935, January–June, 1939; assistant professor of forestry and assistant extension forester, 1936–41; present position, 1941–

HESS, CARL W., *Instructor in Poultry Husbandry, Record of Performance Supervisor, and Research Assistant in Poultry Husbandry, Agricultural Experiment Station*

B.S., Iowa State college, 1938; M.S., University of Maryland, 1940. Graduate study, University of Maryland, 1940–41. Present position, October 1, 1941–

HIGGINS, LEROY J., *Assistant Professor of Agronomy and Assistant Agronomist, Agricultural Experiment Station*

B.S., University of New Hampshire, 1923; graduate study, Cornell university, 1939. Submaster and teacher of agriculture, Walpole, N. H., High school, 1923–25; headmaster and teacher of agriculture, Sunapee, N. H., High school, 1925–27. Instructor in agronomy, University of New Hampshire, 1927–28. Headmaster, Pittsburg N. H., High school, 1928–29. Instructor in agronomy and assistant agronomist of the Experiment station, 1929–32; present position, 1932–

HILL, HAZEL E., *Assistant Professor of Home Economics and Extension Clothing Specialist*

B.S. in Educ., Framingham State Teachers' college, 1928; M.A., Columbia university, 1941. Teacher, junior high school, high school and evening practical arts school, East Douglas, Mass., 1920–22 and Chicopee, Mass., 1922–26. Present position, 1928–

HITCHCOCK, LEON W., *Acting Dean of the College of Technology and Professor of Electrical Engineering*

B.S., Worcester Polytechnic institute, 1908. Engaged in industrial electrical engineering, 1908–14. Revising and writing courses in

electrical railways, practical electricity, electrical transmission and practical mathematics, with the department of university extension, Massachusetts State board of education, 1916–17. Head instructor, electricians' division, New Hampshire college United States army training detachment, 1918. Instructor in electrical engineering, 1910–12; assistant professor, 1912–18; associate professor, 1918–21; professor of electrical engineering, 1921–40; present position, 1940–

HOBAN, MARGARET R., *Assistant Professor and Director of Physical Education for Women*

B.S., Boston university, 1931; graduate of Sargent School for Physical Education, 1925; Roger's School of Dramatic Art, 1927; graduate study, Columbia university, 1939–40. Instructor, Hannah More academy, 1925–27; instructor and director of physical education for women, Thiel college, 1927–30. Director, Camp Marlyn for girls, 1931–. Present position, 1931–.

HODGDON, ALBION R., *Associate Professor of Botany and Plant Taxonomist, Agricultural Experiment Station*

B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932; Ph.D., Harvard university, 1936. Graduate assistant in botany, University of New Hampshire, 1930–32; assistant in botany and biology, Harvard university and Radcliffe college, 1932–36. Instructor in botany, 1936–41; present position, 1941–

HOITT, SAMUEL W., *Assistant to the Director, Extension Service*

B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1931; graduate study, Cornell university, 1938–39. Graduate assistant in agricultural economics in the Experiment station, 1929–31; assistant Boys' and Girls' club agent in Rockingham county, 1931–35; assistant state club leader, Extension service, 1935–41; present position, 1941–

HOLDEN, EDWARD W., *Agricultural Agent in Merrimack County*

B.S., University of Maine, 1923. Agricultural agent, Strafford county, Extension service, 1923–24; present position, 1924–

HOLLEY, WINFRED D., *Instructor in Floriculture and Superintendent of Greenhouses*

B.S., Texas Technological college, 1938; M.S., Michigan State college, 1940. Fellow, Michigan State college, 1938–40. Present position, 1940–

HOLMES, G. ALLEN, *Instructor in Applied Farming*

B.S., University of New Hampshire, 1938. Teacher, Cabot (Vermont) high school, and Marshfield (Vermont) high school, 1938–40. Graduate assistant in applied farming, and proctor at Bickford house, 1940–41; present position, 1941–

HOLT, ELISE F., *Supervisor of Hood House*

R.N., Peter Bent Brigham hospital, 1929; study, Columbia university, summers, 1934, 1935, 1936. Head nurse, Gardner Ward, Massachu-

setts Eye and Ear Infirmary, Boston, Massachusetts, 1929–33. Nurse, University of New Hampshire, 1933–39; present position, 1939–December 31, 1941. (Resigned.)

HOSKEN, DEAN, *Instructor in Agricultural Economics and Research Assistant in Agricultural Economics, Agricultural Experiment Station*
B.A., Mount Holyoke college, 1940, graduate study, Radcliffe college, 1941. Research assistant, Mount Holyoke college, 1941. Present position, February 1, 1942–

HOWE, ARTHUR F., *Graduate Assistant in Bacteriology*
B.S., Massachusetts State college, 1940. Present position, 1940–

HOWES, HORACE L., *Professor of Physics*
B.S., Syracuse university, 1905; Ph.D., Cornell university, 1915. Instructor in physics, Cook academy, Montour Falls, New York, 1905–10; instructor in physics, Cornell university, 1910–15. Research assistant, Carnegie institution of Washington, 1915–18. Summer research work with Professor Nichols of Cornell on fluorescent radiation, 1918–30. Present position, 1918–

HUDDLESTON, ERIC T., *Professor of Architecture and Supervising Architect of the University*
B.Arch., Cornell university, 1910. Postle and Fisher, Chicago, 1910; S. Cronin, architect, Chicago, 1911; American Terra Cotta company, Chicago, 1911; Pretzinger and Musselman, architects, Dayton, Ohio, 1912–13; Schenk and Williams, architects, Dayton, 1914. Professor of architecture, 1914; supervising architect, 1919; present position, 1919–

HUDON, LILLIAN B., *Manager of the University Dining Hall and Instructor in Home Economics*
B.S., University of New Hampshire, 1926. Teacher of home economics, St. Faith's school, Saratoga Springs, 1926–29; teacher of Latin and history, *ibid.*, 1927–29. Assistant manager of the university dining hall, 1929–37; present position, 1937–

HUNSBERGER, WARREN S., *Assistant Professor of Economics*
A.B., Yale college, 1933; Ph.D., Yale university, 1937. Instructor, Albertus Magnus college, New Haven, Connecticut, 1934–35 and 1936–37; Sheffield Scientific school, Yale university, 1935–36; Junior College of Commerce, New Haven, 1936–37; Princeton university, 1937–40; Rutgers university, 1939–40. Present position, 1940– (Entered military service, July 1, 1941–)

HUNT, HENRY, *Captain, Infantry, Assistant Professor of Military Science and Tactics*
B.S., University of New Hampshire, 1927; graduate study, *ibid.*, summer, 1932; Yale university, 1939–40. Instructor, Noah Wallace school, Farmington, Connecticut, 1930–37; assistant principal, *ibid.*, 1937–40. Present position, 1940–

HUTCHINS, LEHMAN C., *First Lieutenant, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
B.S., University of Washington, 1934; M.A., Columbia university, 1939. Assistant, Johns Hopkins university, 1939–40. Instructor, military science and tactics, 1940–41; present position, 1941–

IDDLES, HAROLD A., *Professor of Chemistry*
B.S., Michigan State college, 1918; M.S., University of Iowa, 1921; Ph.D., Columbia university, 1925. Instructor in chemistry, Michigan State college, 1918–20; research assistant in organic chemistry, University of Iowa, 1920–22; instructor in organic chemistry, Columbia university, 1922–29. University of Graz, Austria, summer of 1926. Cutting traveling fellow, research work at University of Manchester, England, and University of Munich, Germany, 1927–28. Present position, 1929–

JACKSON, C. FLOYD, *Director of the Biological Institute and Professor of Zoölogy*
B.A., DePauw university, 1905; M.S., Ohio State university, 1907. Instructor, DePauw university, 1904–05; fellow, Ohio State university, 1905–07. Instructor in entomology, 1908–09; assistant professor of entomology and zoölogy, 1909–10; professor of zoölogy and entomology, 1910–17; professor of zoölogy, 1917–30; Dean of the College of Liberal Arts and professor of zoölogy, 1930–39; present position, 1939–

JACKSON, FREDERICK D., *Associate Professor of Electrical Engineering*
B.S., Pennsylvania State college, 1920; E.E., *ibid.*, 1939. Western Electric company, New York, 1920–21; instructor in school of electrical engineering, Cornell university, 1921–23; radio engineering department of the General Electric company, 1923–24; Philadelphia Electric company, summer 1922; American Telephone and Telegraph company, long lines department, Philadelphia, summer 1925; General Electric company, summer 1929; New England Telephone and Telegraph company, summer 1930. Instructor in electrical engineering, 1924–27; assistant professor of electrical engineering, 1927–39. Present position, 1939–

JEWETT, IRENE E., *Home Demonstration Agent in Cheshire County*
B.E., Keene Normal school, 1932. Teacher, Monroe, New Hampshire, 1932–34. Assistant club agent in Grafton county, 1934–40; present position, 1940–

JOHNSON, ARTHUR W., *Associate Professor of Economics*
Bay Path institute, Normal department, Springfield, Mass.; B.B.A., College of Business Administration, Boston university; M.B.A., *ibid.*, 1929. Certified public accountant, New Hampshire; head of commercial department, Oldtown High school, Oldtown, Maine, 1915–16; head of accounting department, Bay Path institute, 1916–17; instructor in accounting and business mathematics, Medford, Mass., high

school, 1917–20; special instructor of accounting, College of Business Administration, Boston university, evening division, 1930–31; secretary-treasurer, State Board of Accountancy, New Hampshire. Instructor in economics, 1920–21; assistant professor of economics, 1921–27; present position, 1927–

JOHNSON, GIBSON R., *Assistant Professor of History*
A.B., Muskingum college, 1916; M.A., Princeton university, 1920; Ph.D., University of Edinburgh, 1922; graduate study, University of Berlin, summer, 1921; University of Chicago, summer, 1931. Associate and professor of religion, Muskingum college, 1922–29; dean of School of Religion, Parsons college, 1929–32. Present position, 1932–

JOHNSON, LAWRENCE A., *Assistant Professor of Dairy Husbandry and Extension Dairyman*
B.S., Michigan State college, 1936; M.S., Rutgers university, 1939. Instructor in dairy husbandry and extension dairyman, 1938–39; present position, 1939–

JOHNSON, WILLIAM A., *Assistant in the Department of Forestry and in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1941. Present position, September 18, 1941–

JOLLY, DAVID, *Librarian*
B.S., George Peabody College for Teachers, 1936; B.S. in L.S., *ibid.*, 1937; graduate study, University of Chicago, summer, 1938; University of Missouri, summers, 1939, 1940. Library interne, Stephens college, 1937–38; librarian, *ibid.*, 1938–40. Acting Librarian, 1940–41; present position, 1941–

JONES, HOWARD R., *Counselor and Assistant Professor of Education*
B.S., University of Minnesota, 1933; M.A., *ibid.*, 1934; Ph.D., Yale university, 1940. Teacher, Sheridan Junior High school, Minneapolis, 1934–36; counselor, *ibid.*, 1936–38; instructor, University of Connecticut, January to June, 1938; teaching assistant, Yale university, 1938–40. Assistant professor of education, 1940–41; present position, 1941–

JUSTICE, CHARLES M., *Assistant Professor of Physical Education and Athletics*
B.A., University of Nebraska, 1932; M.A., University of Nebraska, 1940. Science instructor, director of athletics and coach, Cambridge, Nebraska, high school, 1932–34; head football coach, director of intramural sports, track coach, assistant commandant of cadet regiment, and physical education instructor, Central High school, Omaha, Nebraska, 1934–37. Instructor in physical education and athletics, 1937–38; present position, 1938–

KALIJARVI, THORSTEN V., *Professor of Government*
A.B., Clark university, 1920; A.M., *ibid.*, 1923; Ph.D., University of

Berlin, 1935. Graduate work, Carnegie Endowment fellow, School of Arts and Sciences, Harvard university, 1920–22. Attended Hague Academy of International Law and Geneva School of International Relations, summer of 1929. Conducted Manchester public forum, February–April, 1937. Instructor in modern languages, 1923–24; instructor in history and political science, 1924–25; assistant professor of history and political science, 1925–27; assistant professor and acting head of the department of political science, 1927–28; associate professor of political science, 1928–37; present position, 1937–

KANGAS, JOHN T., *Editorial Assistant in the General Extension Service and Agricultural Experiment Station*

B.S., Cornell university, 1938. Sales and publicity, Franklin Research company, 1938–40. Present position, March 1, 1940–

KAUPPINEN, TENHO S., *Instructor in Mechanical Engineering*

B.S., University of New Hampshire, 1939. Present position, 1939–

KEENER, HARRY A., *Instructor in Animal and Dairy Husbandry and Research Assistant, Agricultural Experiment Station*

B.S., Pennsylvania State college, 1936; M.S., West Virginia university, 1938; Ph.D., Pennsylvania State college, 1941. Graduate assistant in dairy husbandry, West Virginia university, 1936–38. Present position, 1941–

KEESEY, RAY E., *Instructor in English*

B.A., Ohio university, 1937; M.A., *ibid.*, 1938; graduate study, Ohio State university, spring 1938; summer 1939; 1939–40, summer 1941. Part-time teacher, Athens (Ohio) Junior High school, 1937–38; teacher, Dover (Ohio) Senior High school, 1938–39; assistant, Ohio State university, 1939–40. Present position, 1940–

KENNEDY, ROBERT C., *Graduate Assistant in Applied Farming, and Counselor at East Hall*

B.V.A., Massachusetts State college, 1940. Teacher, Northampton, Massachusetts, Vocational school, 1940–41. Present position, September 10, 1941–

KICHLINE, WILLIAM L., *Assistant Professor of Mathematics*

B.A., Lehigh university, 1924; M.S., *ibid.*, 1928; graduate study, University of Michigan, 1939–40. Assistant in mathematics, Lehigh university, 1924–28; instructor in mathematics, *ibid.*, 1928–31. Instructor in mathematics, 1931–1940; present position, 1940–

KING, ALICE MELENDY, *Home Demonstration Agent-at-Large, Extension Service, and Field Assistant in Nutrition Research, Agricultural Experiment Station*

B.S., University of New Hampshire, 1928, graduate study, Teachers college, Columbia university, 1941. Home Demonstration agent, Carroll county, 1929–38; Delaware, 1938–39. Present position, February 1, 1942–

KLEVEN, LILLIE M., *Reader's Advisor*
B.Ed., Bemidji State Teachers college, Minnesota, 1937; B.L.S., George Peabody college, 1941. Teacher, rural schools, Clearwater county, Minnesota, 1933–35; instructor, Pequot High school, Pequot, Minnesota, 1937–39; library assistant, State Teachers college, Bemidji, Minnesota, 1939–40. Present position, September 8, 1941–

LASH, MABEL A., *Home Demonstration Agent in Merrimack County*
B.S., Simmons college, 1933. Clerk, one year; laboratory technician, Manchester Dairy system, one year. Present position, 1935–

LATIMER, L. PHELPS, *Assistant Professor of Horticulture and Assistant Horticulturist, Agricultural Experiment Station*
B.S., University of California, 1921; M.S., *ibid.*, 1922; Ph.D., *ibid.*, 1926. Graduate assistant in pomology, University of California, 1922–26. Instructor in horticulture and assistant horticulturist of the Experiment station, 1926–28; present position, 1928–

LATON, THOMAS J., *Assistant Professor of Mechanical Engineering*
B.S., New Hampshire college, 1904. Research in turbine work, General Electric company, Lynn, Mass., 1904–06; commercial turbine work, General Electric company, 1906–07; summers of 1918 and 1920 with National Woodworking Machine company, Dover, New Hampshire; summer of 1930 with Kidder Press company, Dover, New Hampshire. Instructor in drawing, 1907–18; assistant professor of drawing, 1918–25; present position, 1925–

LEAVITT, HAROLD I., *Assistant Professor of Physics*
B.S., New Hampshire college, 1921; M.Ed., *ibid.*, 1936; M.A., Columbia university, 1940. Graduate student's course, Westinghouse Electric and Manufacturing company, 1921–22; commercial engineer, *ibid.*, 1922–26. Instructor in physics, 1928–39; present position, 1939–

LEONARD, BRADLEY W., *Reference Librarian*
B.S. in Ed., Fitchburg, Massachusetts, State Teachers college, 1938; B.L.S., Pratt Institute School of Library Science, 1939. Librarian, Brooklyn, New York, Public Library, 1939–41. Present position, October 13, 1941–

LESSARD, FEDORA L., *Nurse and X-ray Technician*
R.N., Peter Bent Brigham hospital, 1928; study at New England School of X-ray, 1938. Clinic nurse, Beth Israel hospital, Boston, Massachusetts, 1929–30; medical supervisor, Kennebec, Maine, Valley hospital, 1930–34. Nurse, University of New Hampshire, 1934–39; present position, 1939–

LEVCOWICH, TATIANA, *Instructor in Home Economics and Research Assistant, Agricultural Experiment Station*
B.S., Rhode Island State college, 1936; M.S., *ibid.*, 1939. Research assistant, Rhode Island State College Experiment station, 1940–41. Present position, January 26, 1942–

LEWIS, DANIEL C., *Associate Professor of Mathematics*
A.B., Haverford college, 1926; A.M., Harvard university, 1928; Ph.D., *ibid.*, 1932. Instructor of mathematics, Lehigh university, 1929–31; part-time instructor of mathematics, Harvard university, 1931–32; instructor of mathematics, Cornell university, 1935–39. Assistant professor of mathematics, 1939–41; present position, 1941–

LEWIS, WALTER F., *County Agent-at-Large*
Essex County Agricultural school, Hawthorne, Massachusetts, 1928–32; B.V.A., Massachusetts State college, 1937; M.S., University of Connecticut, 1940. Apprentice teacher in agriculture, West Springfield, Massachusetts, high school, 1935–36; part time graduate assistant to extension economist, University of Connecticut, two years. Assistant bureau of agricultural economics representative, 1939–40; Assistant Land Use Specialist, Extension Service, 1940–41; present position, 1941–January 31, 1942. (Resigned.)

LEWIS, WALTER R., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., University of Wisconsin, 1941. Present position, 1941–

LINS, LOUISE A., *Assistant Cataloguer*
A.B., Dickinson college, 1939; B.S., Columbia University School of Library Science, 1940. Present position, 1940–

LITTLEFIELD, RALPH B., *Agricultural Agent in Carroll County*
B.S., University of New Hampshire, 1927. Farm manager, Boston State hospital, 1928–37; superintendent, Rockingham County farm, 1937; farm manager, Danvers State hospital, 1937–39. Present position, 1940–

LUNDHOLM, CARL, *Director and Professor of Physical Education and Athletics*
B.S., New Hampshire college, 1921; M.A., Columbia university, 1939. Instructor in American history and director of athletics, Spaulding High school, Barre, Vermont, 1921–24; instructor in American history and director of athletics, Deering High school, Portland, Maine, 1924–28. Acting director, bureau of appointments, April 1–August 31, 1935; instructor in physical education and athletics, 1928–35; assistant professor, 1935–38; associate director and assistant professor of physical education and athletics, 1938–39; acting director, 1938–39; director and associate professor of physical education and athletics, 1939–41; present position, 1941–

LYFORD, WALTER H., JR., *Instructor in Agronomy and Coöperative Field Agent (in Soil Conservation Service), Agricultural Experiment Station*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932. Graduate assistant in chemistry, 1930–32. Instructor in agricultural and biological chemistry and agronomy and assistant in the soil survey, Agricultural Experiment station, 1935–39; present position, 1939–

MACFARLANE, JAMES, *Greenhouse Assistant*
Dr. Bell's Collegiate High, London, 1880. Royal Horticultural Society's Experimental station, 1888. Work in private estates and commercial greenhouses in England, Germany, Belgium, France, Italy and New York, 1888–1915. Instructor in floriculture and florist of the Agricultural Experiment station, 1915–40; present position, 1940–

MAGRATH, RAYMOND C., *Treasurer*
Burdett Business college, 1916. Northfield schools, Northfield, Mass., 1916–18 and 1919–20. Executive secretary, New Hampshire Flood Reconstruction council, 1936; New Hampshire Disaster Emergency committee, 1938. Chief clerk, 1920–23; business secretary, 1923–27; treasurer and business secretary, 1927–38; present position, 1938–

MANTON, ROBERT W., *Director and Associate Professor of Music*
Harvard university, 1918; studied privately the pianoforte and organ under Harris S. Shaw of Boston; composition under Edward B. Hill, Boston, and M. Vincent d'Indy in Paris. Instructor in pianoforte, Mitchell Military school, Billerica, Mass.; taught privately piano, harmony, counterpoint, etc., at Boston; organist and choirmaster, Grace Episcopal church, South Boston. Director and instructor in music, 1923–26; assistant professor, 1926–28; present position, 1928–

MARSDEN, THOMAS A., JR., *Instructor in Horticulture and Extension Horticulturist in Landscape Gardening*
B.S., University of New Hampshire, 1935. Present position, 1937–
(Entered military service, October 21, 1940–)

MARSTON, PHILIP M., *Assistant Professor of History*
B.A., University of New Hampshire, 1924; M.A., *ibid.*, 1927; graduate study, Harvard university, second semester, 1939–40. Student assistant in education and psychology, 1924; graduate assistant in education, psychology and social science, 1924–25; instructor in social science and sociology, 1925–29; assistant professor of social science and sociology, 1929–30; assistant professor of history and social science, 1930–31; present position, 1931–

MCGEE, ADELYN G., *Nurse*
R.N., Peter Bent Brigham hospital, 1926. Special duty nurse at Peter Bent Brigham hospital, 1926–33; similar work in Maine, 1933–39. Present position, 1939–

MCGRAIL, THOMAS H., *Assistant Professor of English*
B.A., University of New Hampshire, 1927; M.A., Cornell university, 1931; Ph.D., *ibid.*, 1936. Graduate assistant in English, 1927 –28; instructor in English, 1928–36; present position, 1936–

MCLAUGHLIN, HELEN F., *Professor of Home Economics*
B.A., University of Wisconsin, 1909; B.S., Simmons college, 1915; M.A., Teachers college, Columbia university, 1925. Home Demon-

stration agent, Extension service, 1917–20; instructor in household science, 1920–21; associate professor, 1921–23; present position, 1923–

MEAD, ALDEN H., *Club Agent in Coos County*
B.S., Cornell university, 1928. Assistant club agent, Monroe county, New York, 1929; club agent, Columbia county, New York, 1929; farmer, New Milford, Pennsylvania, 1929–30. Present position, 1930–

MEDESY, WILLIAM A., *Assistant Professor of Forestry*
B.S., Purdue university, 1931; M.F., Yale university, 1933. Field assistant, Central States Forest Experiment Station, 1932; C.C.C. Camp superintendent, Unaka National Forest (Tennessee, Virginia), 1933–34; assistant forester, Monongahela National Forest (West Virginia), 1934; forest ranger, *ibid.*, 1934–36; assistant forester, Jefferson National Forest (Virginia), 1936; assistant forester, Cumberland National Forest (Kentucky), 1936–37; associate forester, White Mountain National Forest, 1937–40. Instructor in forestry, 1940–41; present position, 1941– (Entered military service, July 1, 1941–)

METCALF, CLARENCE W., *First Lieutenant, Infantry, Instructor in Military Science and Tactics*
B.S., University of New Hampshire, 1932; M.A., Harvard university, 1935; M.Ed., University of New Hampshire, 1942. Headmaster, Epping, New Hampshire, High school, 1935–41. Present position, November 5, 1941–

MEYERS, THEODORE R., *Associate Professor of Geology*
B.A., Ohio State university, 1926; M.A., *ibid.*, 1929. Austin fellow, Harvard university, 1931–32. Assistant in geology, Ohio State university, 1924–26; assistant geologist for the geological survey of Ohio, summers 1925–28; geologist, New Hampshire State highway department, summers of 1935–36. Instructor in geology, 1927–34; assistant professor of geology, 1934–41; present position, 1941–

MILLS, MARIAN E., *Assistant Professor of Botany*
B.S., Teachers college, Columbia university, 1917; M.A., *ibid.*, 1920. Instructor in science, high school, Montclair, New Jersey, 1915–21; assistant in biology department, Teachers college, 1921–22; associate professor of biology, Kent State Normal college, 1922–27. Present position, 1927–

MITCHAM, SHELBY A., *Assistant Professor of Home Economics*
B.S., North Texas State Teachers college, 1934; M.S., Iowa State college, 1940. Teacher, Texas public schools, 1929–1939; critic teacher, East Carolina Teachers college, Greenville, North Carolina, 1939–41. Present position, 1941–

MOORE, HERBERT C., *Assistant Professor of Dairy Husbandry and Assistant Dairy Husbandman, Agricultural Experiment Station*
B.S., Purdue university, 1923; M.S., University of Minnesota, 1925.

Instructor in dairying, Rutgers university, 1925–26; chemist, The Paulus Dairy company, Inc., New Brunswick, New Jersey, 1926–28. Instructor in dairy husbandry and assistant dairy husbandman in the Experiment station, 1928–35; present position, 1935–

MOORE, RACHEL C., *Assistant County Club Agent in Grafton County*
B. S., University of New Hampshire, 1940. Present position, 1940–

MORGAN, C. RICHARD, *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1941. Present position, 1941–

MORROW, KENNETH S., *Professor of Dairy Husbandry and Dairy Husbandman of the Experiment Station*
B.S., University of Minnesota, 1918; M.S., *ibid.*, 1925. Operated dairy farm, Minnesota, 1919–24. Assistant dairy husbandman, Clemson college, South Carolina, 1925; associate dairy husbandman, *ibid.*, 1926–28; assistant professor of dairy husbandry and associate dairyman, University of West Virginia, 1928–31; assistant dairy specialist in the Extension service, Rutgers university, 1931–34. Present position, 1934–

MOULTON, VERNA E., *Instructor in Home Economics*
B.S., University of New Hampshire, 1938; M.Ed., *ibid.*, 1940; graduate study, Columbia university, summer, 1940, 1941. Graduate assistant in Home Economics, 1938–39; graduate assistant in Home Economics and house director in Bickford house, 1939–40; present position, 1940–

NARBUT, JOSEPH E., *Sergeant, Detached Enlisted Men's List, U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. Army, 1939– Present position, August 6, 1941–

NASVIK, HARLAND P., *Assistant Professor and University Photographer*
B.A., Luther college, 1931. Owner, manager, college studio, Luther college, 1927–31; photographer and salesman, New York City; official photographer, Piccard Flight, Norse Royalty visit to Decorah, Iowa; photographer, Northern Pacific railway and Northwest Airways, Inc.; photographic technician, Photographic laboratory, University of Minnesota, 1935–38; assistant manager, *ibid.*, 1938–40. Present position, 1940–

NEVILLE, JOHN P., *Assistant in Charge of Radio*
B.A., University of New Hampshire, 1927. Graduate study, Ohio State university, January 1–August 31, 1942. Publicity agent and executive assistant in A.A.A. in the Extension service, 1935–36; assistant agricultural editor in the Experiment station and Extension service, 1936–38. Assistant to the director of the General Extension service and Agricultural Experiment station, 1938–39; assistant to the director of the General Extension Service, 1939–41; present position, 1941–

NORTHBY, ARWOOD S., *Assistant to the President*
B.S.. University of Minnesota, 1924; M.A., *ibid.*, 1930; Ph.D., *ibid.*, 1935. Teacher, junior high school, Grand Rapids, Minnesota, 1924–25; principal, *ibid.*, 1925–28; superintendent of schools, Baudette, Minnesota, 1928–31; high school inspector, University of Minnesota, 1931–34; instructor in education and assistant to the dean, *ibid.*, 1935; assistant professor, University of Buffalo, 1936–39. Chairman, Committee on Summer School, 1940–. Present position, 1939–

NULSEN, WILLIAM B., *Assistant Professor of Electrical Engineering*
B.S., California Institute of Technology, 1918; M.S., University of New Hampshire, 1930; graduate study, Union college, 1920–21. General Electric company, Schenectady, New York, 1918–26. Instructor in electrical engineering, 1926–29; present position, 1929–

O'BRIEN, DANIEL A., *Agricultural Agent in Coos County*
Cornell university, 1913. Agricultural instructor, high school, Little Valley, New York, 1913–17; assistant farm manager, Parish, New York, 1920. Present position, 1920–

O'CONNELL, ELIAS M., *Instructor in Mechanical Engineering, Forge and Welding Shop*
Graduate, Wentworth institute, course in forging, hardening and tempering, 1923; graduate, two-year course in pattern making, *ibid.*, 1925. Employed as acetylene welder and shop worker for Biddle and Smart of Amesbury, Mass., 1922–23; as pattern maker, 1925–26; electric welder Sullivan Machine company, Claremont, N. H., summers, 1936, 37. Present position, 1926–

O'KANE, WALTER C., *Professor of Economic Entomology and Entomologist, Agricultural Experiment Station*
B.A., Ohio State university, 1897; M.A., *ibid.*, 1909; D.Sc. (hon.), *ibid.*, 1932. Newspaper and magazine work, 1899–1909; United States Food administration, 1917–18; chairman of board appointed by U. S. Secretary of Agriculture to combat Mediterranean fruit fly in Florida, January–November, 1930; chairman, National Plant board, 1930–35; chairman, board of governors, the Crop Protection institute, 1920–. Deputy commissioner of agriculture, State of New Hampshire, 1913–; State nursery inspector, 1915–. Associate professor of entomology and assistant entomologist in the Experiment station, 1909–10; present position, 1910–

PARKER, CLIFFORD S., *Professor of Languages*
A.B., Harvard university, 1912; A.M., *ibid.*, 1914; Ph.D., Columbia university, 1925. Master in French and German, St. Stephens school, 1912–13; instructor in French and German, Union college, 1914–16; master in French and Spanish, Country Day school, Kansas City, Missouri, 1916–17; assistant professor of French, University of Nebraska, 1919–20; instructor in French, Columbia university, 1920–28; associate professor of French, University of Maine, 1928–31. Present position, 1931–

PARTRIDGE, ALLAN B., *Assistant Professor of History*
A.B., Clark university, 1922; A.M., *ibid.*, 1923; graduate study, Harvard university, 1939. Master in the Holderness school, 1923–25, Instructor in history and political science, 1925–29; present position, 1929–.

PEART, H. PATRICIA, *Library Assistant in Charge of the Art Division*
B.A., University of New Hampshire, 1936. Instructor, Chamberlayne School, Boston, 1937; Cambridge Preparatory and Graduate Schools, 1937–41. Present position, June 1, 1941–

PEPOON, LUCILE, *Assistant Professor of Home Economics*
B.S., University of Wyoming, 1926; M.S., University of Nebraska, 1937. High school instructor, Rawlins and Hanna, Wyoming, 1926–28, 1931–32; Douglas, Alaska, 1928–30, 1931–36; assistant supervisor vocational home economics, Territory of Alaska, 1935–36; instructor, University of Nebraska, summer 1937; home demonstration agent, Iowa, 1937–38; high school teacher and cafeteria manager, Canal Zone, 1938–39. Instructor in home economics, 1939–41; present position, 1941–

PERCIVAL, GORDON P., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist in Agricultural and Biological Chemistry, Agricultural Experiment Station*
B.S., Massachusetts Agricultural college, 1924; M.S., *ibid.*, 1926. Graduate study, Rutgers university, September 16, 1941–January 31, 1942. Graduate assistant, Massachusetts Agricultural college, 1924–26. Present position, 1926–

PERKINS, DONALD M., *Instructor in Mathematics*
B.S., University of New Hampshire, 1931; M.S., *ibid.*, 1933. Graduate assistant, 1931–33; present position, 1933–

PERRETON, ARNOLD, *Assistant Professor of Architecture*
B.Arch., Carnegie Institute of Technology, 1927; M.Arch., Harvard university, 1940. One year of travel and study in Europe. Two years with Janssen & Cocken, architects, Pittsburgh, Pa. Instructor in architecture, 1928–31; present position, 1931–

PERRY, ERROL C., *Land Use Specialist, Extension Service*
B.S., Massachusetts Agricultural college, 1919. Tester for cow test associations, laborer and herdsman, Claremont, Lebanon and Hooksett, New Hampshire, 1920–29. Agricultural agent for Carroll county, 1929–39; present position, 1939–

PHILLIPS, THOMAS G., *Professor of Agricultural and Biological Chemistry and Chemist, Agricultural Experiment Station*
B.S., Ohio State university, 1912; M.S., *ibid.*, 1913; Ph.D., University of Chicago, 1918. Instructor to professor, department of agricultural chemistry, Ohio State university, 1912–25. Present position, 1925–

PHILLIPS, WILLIAM T., *Assistant Professor of Economics*
A.B., Allegheny college, 1931; Ph.D., Cornell university, 1942. Metropolitan Life Insurance company, 1931–36; Wentworth and Company Investment Council, 1936; Carret, Gammons and Company, Investment Dealers, 1937; tutor, University Tutoring school, 1937–39; instructor, Cornell university, 1938–40. Instructor in economics, 1940–41; present position, 1941–

PIERCE, EVERETT W., *Agricultural Agent in Hillsborough County*
B.S., Cornell university, 1923. Assistant county agent, Ontario county, New York, 1923. Present position, 1923–

PRINCE, FORD S., *Professor of Agronomy and Agronomist, Agricultural Experiment Station*
B.S., University of Illinois, 1913; graduate study, University of Wales, summer, 1938. Instructor in soils, Michigan Agricultural college, 1913–14; instructor and assistant professor of agronomy, New Hampshire college, 1914–18; county agricultural agent, Xenia, Ohio, 1918–25. Associate agronomist and extension specialist in soils and crops, 1925–32; associate professor of agronomy, associate agronomist of the Experiment station, and specialist in soils and crops in the Extension service, 1932–35; associate professor of agronomy and associate agronomist of the Experiment station, 1935–36; present position, 1936–

PULLEN, RUTH E., *Home Demonstration Agent in Carroll County*
B.S., Madison college, 1937. Teacher, Crozet (Virginia) high school, 1937–40; Greenwood (Virginia) high school, 1939–40. Present position, 1940–

PURINGTON, JAMES A., *Agricultural Agent in Rockingham County*
B.S., New Hampshire college, 1916; M.S., Massachusetts Agricultural college, 1920. Boys' and Girls' club agent, Cheshire county, 1920–22; present position, 1922–

RAWLINGS, CECIL O., *Assistant Professor of Horticulture and Extension Horticulturist*
B.S., University of Illinois, 1925; graduate study, University of New Hampshire, 1933, 1938–39. U.S.D.A., Illinois, Florida and Georgia, 1925–26; horticultural agent, St. Louis and Southwestern railway, 1926–30. Present position, 1930–

RECORD, MASON T., *Instructor in Sociology*
B.A., Yale college, 1932; Ph.D., Yale university, 1938. Instructor, Sweet Briar college, 1938–40; University of Connecticut, 1940–41. Present position, 1941–

RICE, UNA A., *Home Demonstration Agent in Grafton County*
B.S., Teachers college, Columbia university, 1927. Graduate study, Columbia university, 1941–42. Nasson institute, 1914–16. Teacher, home economics, Maine, New Hampshire, Vermont and Massachusetts, 1916–29. Present position, 1929–

RICH, AVERY E., *Acting Club Agent in Grafton County*
B.S., University of Maine, 1937; M.S., *ibid.*, 1939. Assistant supervisor, Farm Security administration, 1939–40; agricultural instructor, Newport, Maine, High school, 1940–41. Present position, December 1, 1941–

RICHARDS, ALFRED E., *Professor of English*
A.B., Yale university, 1898; A.M., *ibid.*, 1900; Ph.D., University of Munich, Germany, 1904; graduate study, University of California, summers 1917, 27; Columbia university, 1920. Instructor in English and history, Winsted, Connecticut, 1900–01; instructor in modern languages, Lehigh university, 1904–05; instructor in German, Princeton university, 1905–11; instructor in English, University of Washington, 1911–12; lecturer, University of Minnesota, 1912. Present position, 1912–

RICHARDS, ELISABETH, *Library Assistant*
B.S., University of New Hampshire, 1940. Present position, 1940–

RICHARDS, MATHIAS C., *Assistant Professor of Botany and Plant Pathologist, Agricultural Experiment Station*
B.S., Utah State Agricultural college, 1932; Ph.D., Cornell university, 1938. Instructor in plant pathology, Cornell university, 1938–39; associate professor of plant pathology, University of Tennessee, 1939–41. Present position, March 1, 1941–

RICHARDSON, EDYTHE T., *Assistant Professor of Zoölogy*
B.S., New Hampshire college, 1922; M.S., *ibid.*, 1924. Graduate assistant in zoölogy, 1922–24; instructor in zoölogy, 1924–29; present position, 1929–

RITZMAN, ERNEST G., *Research Professor in Animal Husbandry in the Experiment Station*
B.S.A., Iowa State college, 1903; M.S. (hon.), University of New Hampshire, 1928. With bureau of animal industry, U. S. department of agriculture, 1903–08; animal husbandman, Porto Rico Agricultural Experiment station, 1908–15; research associate, Carnegie Institution of Washington, 1934. Present position, 1915–

ROBERTS, BROCKWAY D., *University Physician*
B.S., University of Chicago, 1925; M.D., University of Illinois College of Medicine, 1934. General practice, Wayland, Iowa, 1935–38; director of student health, Knox college, 1938–41. Present position, 1941–

ROBINSON, EARL P., *County Agent Leader in the Extension Service*
B.S., Michigan Agricultural college, 1907. Teacher, Northwood Center, N. H., 1907–08; agriculturist for Indiana Sugar company, 1912; county agricultural agent, Saginaw county, Michigan, 1913–17; assistant state leader, Michigan, 1917–18. Rural rehabilitation unit of federal relief administration, Washington, 1934. State executive of-

ficer, agricultural conservation program, 1936–; present position, 1919–

ROGERS, WARREN H., *Principal Field Agent*
B.S., University of New Hampshire, 1935. County agricultural agent at large, 1935–40; present position, 1940– (Entered government service, June 25, 1941–)

ROOD, W. HAROLD, *Graduate Assistant in Physical Education and Athletics*
B.P.E., Springfield college, 1929; graduate study, *ibid.*, summers, 1930, 1931. Director of athletics and physical education, Roselle High school, 1929–30; director of athletics, Ricker Classical institute and Junior college, 1930–32; director of athletics and submaster, *ibid.*, 1932–40. Present position, 1940–January 17, 1942. (Resigned.)

ROPER, ELIZABETH R., *Club Agent in Carroll County*
B.A., University of New Hampshire, 1928. Acting boys' and girls' club agent in Carroll county, 1938–39; club agent in Strafford county, 1928–38, 1939–41; present position, October 1, 1941–

ROSEN, MYRON J., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1941. Present position, 1941–

ROWE, EMMA P., *Acting Circulation Librarian*
B.A., University of New Hampshire, 1938; graduate study, *ibid.*, summer, 1939. Second assistant librarian, Exeter Public library. Library assistant, 1940–42; present position, February 1, 1942–

ROWELL, JOHN C., *Assistant in Chemistry*
B.S., University of New Hampshire, 1940. Graduate assistant in chemistry, 1940–41; present position, 1941–

RUDD, HERBERT F., *Professor of Philosophy*
A.B., Central college, Iowa, 1900; B.D., University of Chicago, 1903; M.A., *ibid.*, 1913; Ph.D., *ibid.*, 1914. Principal of Munroe academy, Suifu, West China, 1906–08; general mission work, Nigyuanfu, 1909–14; lecturer on problems of China, University of Chicago, 1914; supervisor of mission schools, Suifu, 1914–16; principal of Munroe academy, 1916–17; professor of education and psychology, West China university, Chengtu, 1918–19; dean of department of education, West China university, 1920–21; special work, Columbia university and University of Chicago, 1921–22. Associate professor of education and psychology, 1922–25; professor of philosophy and psychology, 1925–34; present position, 1934–

RUTHERFORD, RICHARD R., *Assistant Club Agent in Merrimack County*
B.S., University of New Hampshire, 1940. Present position, 1940–January 17, 1942. (Resigned.)

SACKETT, EVERETT B., *Registrar and Associate Professor of Education*
B.A., Hamline university, 1923; M.A., University of Minnesota, 1925; Ph.D., Columbia university, 1931. Teacher, high schools,

Minnesota and Wisconsin, 1925–27; director of research and curriculum, Panama Canal schools, 1930–35; lecturer, Colorado State College of Education, summers, 1933, 34; chairman of admissions, Lincoln school, Columbia, 1935–36; extension instructor, State Teachers college, Montclair, N. J., 1936; research associate, New York Regents' Education Inquiry, 1936–37; instructor, Graduate School of Education, Harvard university, 1938. Associate registrar and associate professor of education, 1938–39; present position, 1939–

SANBORN, MARY L., *Assistant State Club Leader, Extension Service*
Oread institute, Worcester, 1904; Teachers college, Columbia university, summer, 1912, fall and winter terms, 1914; Colorado State college, summer, 1938. Teacher in grade schools in Massachusetts and New Hampshire, 1904–12; teacher of home economics, Westerly, Rhode Island, 1911–14. Present position, 1915–

SAUER, GEORGE H., *Assistant Professor of Physical Education and Athletics*
B.S., University of Nebraska, 1934; graduate study, University of Nebraska, summer, 1934; M.A., Columbia university, 1941. Coached freshman football and basketball teams, University of Nebraska, 1934; played professional football with the Green Bay Packers, 1935–36; employed by General Foods, 1937. Present position, 1937–

SCHAEFER, PAUL E., *Assistant Professor of Zoölogy*
A.B., Bethany college, 1926; M.S., Ohio State university, 1931; Ph.D., *ibid.*, 1936. Teacher of general science, Warren, Ohio, Junior High school, 1927–28; graduate assistant in zoölogy, Ohio State university, 1930–31, instructor in zoölogy, Ohio State university, 1931–41. Present position, 1941–

SCHEIER, EDWIN, *Instructor in Pottery*
Art-Students League, 1928–30; New York School of Industrial Art, 1929–31; studied and worked with following craftsmen: Vally Weiselther, Peter Muler Monk, Eugene Schumacker. Studio potter, New York City, 1934–36; instructor, Federal Art Project of New York, 1936–37; supervisor, Lynchburg Art Center, Virginia, 1937–38; director, Norris Art Center, Tennessee, 1937–39; operated a commercial pottery in Glade Spring, Virginia, 1939–40. Present position, 1940–

SCHOEDINGER, PAUL S., *Assistant Professor of English*
A.B., Princeton university, 1920; M.A., Ohio State university, 1921; Ph.D., Yale university, 1940. Instructor in English, Ohio State university, 1921–22. Instructor in English, 1926–29; present position, 1929–

SCHOOLCRAFT, JAMES T., JR., *Assistant Professor of Languages*
B.S., Union college, 1923; Abgangs-Zeugnis, Heidelberg university, 1924; A.M., Columbia university, 1926. Teacher, Columbia university, fall term, 1924; Hunter college, winter term, 1925–26; University

of Manitoba, 1927–30; The Phillips Exeter academy, 1931–34. Instructor in languages, 1936–39; present position, 1939–

SCRIPTURE, PAUL N., *Instructor in Agricultural and Biological Chemistry and Assistant in the Soil Survey, Agricultural Experiment Station*
B.S., University of New Hampshire, 1934. Laboratory assistant in agricultural and biological chemistry, 1934–35; present position, 1935–

SCUDDER, HAROLD H., *Acting Dean of the College of Liberal Arts, and Professor of English*
B.S., Dartmouth college, 1903. Study at Cambridge university, England, 1936. Newspaper work in New England and the Pacific Northwest, 1904–13. Publicity director Federal Food administration for New Hampshire, 1918. Faculty: Boston university summer session, 1917; University of Maine summer session, 1930. In charge of publicity, New Hampshire college, 1913–23. Instructor in English, 1913–14; assistant professor, 1914–18; associate professor, 1918–28; chairman, Executive committee, College of Liberal Arts, second semester, 1940; professor of English, 1928–41. Present position, 1941–

SEARS, ROBERT B., *Assistant in Charge of the Plant and Animal Sciences Library*
B.S., University of the South, 1932; B.S. in Library Science, Columbia university, 1940. Tennessee Valley Authority, surveying, clerical, research, laboratory work, 1934–1939; New York Public library, summer, 1940; Columbia University library, fall, 1940. Present position, 1941–

SEIBERLICH, JOSEPH, *Research Consultant in the Engineering Experiment Station*
Diplom Ingenieur, Technical University, Karlsruhe, Germany, 1924; Doctor Ingenieur, *ibid.*, 1928. Research chemist, I. G. Farbenindustry, Germany, 1926–1933; Canadian International Paper company, Hawkesbury, Ontario, Canada, 1934–37, independent research and consulting work, 1938–41. Present position, November 10, 1941–

SHEEHAN, ELEANOR L., *Instructor in Zoölogy*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1931. Graduate assistant in zoölogy, University of New Hampshire, 1930–31; assistant in zoölogy, Barnard college, Columbia university, 1931–32; instructor, Adelphi college, 1932–33. Assistant in zoölogy, 1933–35; present position, 1935–

SHIMER, STANLEY R., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist, Agricultural Experiment Station*
B.S., Muhlenberg college, 1918; M.S., Pennsylvania State college, 1923; graduate study, Cornell university, 1929–30. Instructor in science, high school, Lansdale, Pennsylvania, 1918–19; head of chemistry department, State Normal school, East Stroudsburg, Pennsylvania, 1919–20; head of physics department, Battin high school, Elizabeth, New Jersey, 1920–21; instructor in physiological chemistry,

medical department, Temple university, 1921–22; graduate assistant in chemistry, University of Illinois, 1923–24. Instructor in agricultural and biological chemistry and assistant chemist of the Experiment station, 1924–28; present position, 1928–

SIM, JOHN C., *Assistant Professor of English and University Editor*
B.A., University of North Dakota, 1932; M.A., University of Minnesota, 1940. Assistant, instructor, acting head of Department of Journalism, University of North Dakota, 1934–40; instructor, University of Alabama, 1940–41. Present position, August 1, 1941–

SKELTON, RUSSELL R., *Associate Professor of Civil Engineering*
B.S., in civil engineering, Purdue university, 1923; C.E., *ibid.*, 1934; S.M. in engineering, Harvard university, 1939. Highway engineer, Illinois Highway department, 1923–26; assistant engineer, bridge department of Southern railway system, 1926–28; New Hampshire State Highway department, resident engineer on construction and special design, summers 1929, '33; consulting engineer, City of Dover, N. H., summers, 1935, '36; instructor, Graduate School of Engineering, Harvard university, 1938–39. Instructor in civil engineering, 1928–30; assistant professor of civil engineering, 1930–35; present position, 1935–

SLANETZ, LAWRENCE W., *Associate Professor of Bacteriology and Bacteriologist, Agricultural Experiment Station*
B.S., Connecticut State college, 1929; Ph.D., Yale university, 1932. Assistant instructor, Yale university, 1931–32. Instructor in bacteriology, department of botany, 1932–34; instructor in bacteriology, department of botany, and assistant in bacteriology in the Experiment station, 1934–38; assistant professor of bacteriology, department of botany, and assistant bacteriologist, Agricultural Experiment station, 1938–41; present position, 1941–

SLOBIN, HERMON L., *Dean of the Graduate School and Professor of Mathematics*
A.B., Clark university, 1905; Ph.D., *ibid.*, 1908. Instructor, Michigan State college, 1908–09; instructor and assistant professor, University of Minnesota, 1908–18. Study at Cambridge university, England, and in Europe, 1932. Director of the Summer school, 1922–27; acting director, 1933; director, 1934–37; director of the Graduate school, 1928–30; dean of the Graduate school, 1930–; professor of mathematics, 1919–; present position, 1930–

SMITH, DONALD W., *Assistant in Visual Aids*
B.S., University of Illinois, 1939. Assistant in visual education service, University of Illinois Extension service, 1932–39. Present position, 1939–

SMITH, EDWIN K., *Colonel, Coast Artillery Corps, Professor of Military Science and Tactics*
M.E., Cornell university, 1906. Graduate Battery Officers course,

Coast Artillery school, Fort Monroe, Virginia, 1914; inspector and adjutant base No. 1, St. Nazaire, France, 1918; secretary to the chief of artillery, A.E.F., France, 1918 and 1919; graduate, advanced course, Coast Artillery school, Fort Monroe, Virginia, 1924; graduate, Command and General Staff school, Fort Leavenworth, Kansas, 1925; professor of military science and tactics, Athens high school, Athens, Georgia, 1932–36; Executive 4th Coast Artillery, Fort Amador, Canal Zone, 1936; Executive and Adjutant, Pacific Sector, Balboa, Canal Zone, 1936–38. Present position, 1938–

SMITH, GRACE H., *Home Demonstration Agent in Strafford County*
B.S., Cornell university, 1921. New York State College for Teachers, 1917–18. Assistant home demonstration agent, Suffolk county, New York, 1921–22; home demonstration agent, Cayuga county, New York, 1922–25, and in Herkimer county, New York, 1925–33. Present position, 1933–

SMITH, HARRY W., *Professor of Economics*
A.B., Hamilton college, 1908; A.M., *ibid.*, 1912; A.M., Columbia university, 1920; Auburn Theological seminary, 1911. Summer 1926, studied, in Europe, international economic and political cooperation under appointment of Carnegie Endowment for International Peace. For three summers member of School of Politics at Williams college. State supervisor of workers' education, W.P.A., 1936–37. Professor of oratory and economics, Dubuque college and seminary, 1918–20. Present position, 1920–

SMITH, LUCINDA P., *Associate Professor of English*
A.B., Colby college, 1901; M.A., Boston university, 1934. Taught in Massachusetts high schools, 1901–05; Dover, New Hampshire, high school, 1905–13. Instructor in English, 1919–26; assistant professor of English, 1926–29; present position, 1929–

SMITH, MELVIN M., *Associate Professor of Chemistry*
A.B., Colby college, 1890; A.M., *ibid.*, 1893. Submaster, 1898–1911 and headmaster 1911–16, Dover, New Hampshire, high school. Instructor in chemistry, 1917–21; assistant professor of chemistry, 1921–30; present position, 1930–

SMITH, ROYAL W., *Agricultural Agent in Belknap County*
B.S., University of New Hampshire, 1928. Agricultural agent in Carroll county, 1928–29; present position, 1929–

SMITH, RUTH L., *Home Demonstration Agent-at-Large*
B.S., University of New Hampshire, 1938. Instructor, Weare, New Hampshire, High school, 1938–39. Present position, 1939–

SMITH, TODD O., *Assistant Professor of Agricultural and Biological Chemistry and Associate Chemist in Agricultural and Biological Chemistry, Agricultural Experiment Station*
A.B., Indiana university, 1910; M.S., New Hampshire college, 1917.

Assistant chemist, Agricultural Experiment station, 1910–21; present position, 1921–

SMITH, WILLIAM W., *Assistant Professor of Horticulture and Research Assistant in Horticulture, Agricultural Experiment Station*
B.S., University of New Hampshire, 1924; M.S., *ibid.*, 1929; Ph.D., Michigan State college, 1935. Graduate assistant, Michigan State college, 1929–33; research assistant, *ibid.*, 1933–36. Present position, 1936–

SOLT, MARVIN R., *Associate Professor of Mathematics*
B.S., Lehigh university, 1918; M.S., *ibid.*, 1925; graduate study, University of California, 1938–39. Instructor, Mercersburgh academy, 1918–19; instructor in mathematics at Lehigh university, 1919–26. Instructor in mathematics, 1926–29; assistant professor of mathematics, 1929–41; present position, 1941–

SPILLANE, ELEANOR M., *Graduate Assistant in the Department of Physical Education for Women*
B.S., Sargent college of Boston university, 1939. Instructor in physical education, Presentation of Mary academy and Rivier college, 1939–41. Present position, 1941–

STANDEN, ANTHONY, *Assistant in Entomology and Research Chemical Assistant, Agricultural Experiment Station*
B.A., Oxford, England, 1928; S.M., Massachusetts Institute of Technology, 1930. Graduate study, University of New Hampshire, 1940–41. Research chemist, Imperial Chemical Industries, Ltd., 1930–38. Present position, 1941–

STANDISH, MYLES, *Assistant County Forestry Extension Agent in Coos County*
B.S., University of Maine, 1926. Party chief, timber and land surveys, 1927–39. Present position, December 16, 1939–July 31, 1940; February 1, 1941–

STARKE, RAYMOND R., *Associate Professor of Hotel Administration*
A.B., Boston university, 1921; A.M., Harvard university, 1926; graduate study, Cornell university, second semester, 1937–38. Assistant in physics, Harvard university, 1924–26. Instructor in physics, 1921–24; 1926–28; assistant professor of physics, 1928–38; present position, 1938–

STARLINGS, PAUL N., *Colonel, Associate Professor of Military Science and Tactics*
B.S., St. Johns college, Annapolis, Maryland, 1913; graduate of the Infantry school, the Chemical Warfare school, the Command and General Staff school. U. S. Army officer, Infantry, 1916–. Associate professor, University of Illinois, 1923–27. Present position, 1939–October 24, 1941. (Transferred.)

STENZEL, GEORGE, *Assistant Carroll County Agent in Forestry*
B.S., University of New Hampshire, 1938; M.F., Yale School of Forestry, 1939. Forest Service N.E.F.E., October, 1939–March, 1940. Present position, 1940–

STEVENS, CLARK L., *Professor of Forestry and Forester, Agricultural Experiment Station*
B.S., New Hampshire college, 1917; M.F., Yale university, 1926; Ph.D., *ibid.*, 1930. Assistant in forestry, 1919, 1920–21; instructor in forestry, 1921; assistant professor of forestry, 1922–25; assistant professor of forestry and assistant forester of the Experiment station, 1925–37; associate professor of forestry and associate forester of the Experiment station, 1937–38; present position, 1938–

STEVENS, HENRY B., *Acting Director of the General Extension Service*
A.B., Dartmouth college, 1912. Student, folk-play and folk-schools, Europe, 1934. Assistant editor, Woman's Journal and Suffrage News, 1912–13; associate editor, 1914–17. Executive secretary, Experiment station and Extension service, 1918–38. Assistant director of the General Extension service and executive secretary of the Agricultural Experiment station, 1938–39; assistant director of the General Extension service and editor of the Agricultural Experiment station, 1939–41; present position, 1941–

STEWART, GLENN W., *Instructor in Geology*
B.S., University of New Hampshire, 1935; M.S., Syracuse university, 1937. Graduate study, Harvard university, 1937–38. Assistant in geology, University of New Hampshire, 1938–39. Instructor in geology, Purdue university, 1939–41. Present position, 1941–

STOLWORTHY, E. HOWARD, *Assistant Professor of Mechanical Engineering*
B.S., Tufts college, 1922; graduate study, Yale university, 1939–40. Draftsman, ventilating equipment, B. F. Sturtevant Co., summer, 1926; designer, industrial plant equipment, General Electric Co., summer, 1929; designer, power plant equipment, Stone and Webster, Inc., summer, 1930; heating engineer, Public Works Dept., State of New Hampshire, summer, 1933; asst. engineer, power plant installation, General Electric Co., summer, 1937; asst. director, Civilian Pilot Training, summer, fall, 1940; coordinator, 1941–; ground school instructor, 1940–. Instructor in mechanical engineering, 1922–29; present position, 1929–

STOWE, A. MONROE, *Professor of Education*
Ph.B., Northwestern university, 1903; A.M., *ibid.*, 1904; A.M., Harvard university, 1905; Ph.D., Columbia university, 1909. Secondary school work, four years; associate professor of education, Kansas State Teachers college, 1909–12; director of training, State Normal school, Whitewater, Wisconsin, 1912–13; acting professor of education, DePauw university, 1913–14; President, University of City of Toledo, 1914–25; research, 1925–26; professor of education, Randolph-Macon

Woman's college, 1926–34; visiting professor, Duke university summer school, 1927–34, 37, 41. Present position, 1934–

STROUD, RICHARD H., *Graduate Assistant in Zoölogy*
B.S., Bowdoin college, 1939. Present position, 1940–January 31, 1942. (Resigned.)

SWAIN, LEWIS C., *Assistant Professor of Forestry*
B.S., New Hampshire college, 1918; Graduate, Bandmaster School, Chaumont, France, 1919; M.F., Harvard university, 1939. Bandmaster, 318th Engineers' Band, U. S. Army, 1919; employed in erecting department, Worthington Pump and Machinery Corporation, 1920–21; partner in woodworking and manufacturing company, 1921–26; assistant pathologist, United States bureau of plant industry and bureau of entomology and plant quarantine (civil service rating, associate pathologist), 1926–36; forester in the southeast district, State of New Hampshire, 1926–36. Instructor in music with the status of bandmaster in the department of military science, 1927–36. Instructor in forestry and music, 1936–39; present position, 1939–

SWANSON, C. LOYAL W., *Instructor in Agronomy and Soil Survey Assistant, Agricultural Experiment Station*
B.A., Coe college, 1933; M.S., Iowa State college, 1938; Ph.D., *ibid.*, 1941. Foreman and survey mapper, United States Forest service, 1933–35; junior agronomist, United States Soil Conservation service, 1935–37; junior agronomist, United States Soil Conservation Experiment station, University of Missouri, 1939–40; fellow, Iowa State college, 1937–39, 1940–41. Present position, September 15, 1941–

SWASEY, HENRY C., *Associate Professor of Physical Education and Athletics*
B.S., Amherst college, 1915; M.S., Indiana university, 1941. Fellow in physical education, Amherst college, 1915–16; instructor in physical education, Fessenden school, West Newton, Mass., 1916–17; instructor in physical education, Adelphia academy, Brooklyn, New York, 1917–18; instructor in physical education, Worcester Polytechnic institute, 1918–21. Assistant professor of physical education for men, 1921–26; present position, 1926–

SWEDBERG, JAMES H., *Graduate Assistant in Agricultural Economics, Agricultural Experiment Station*
B.S., University of Minnesota, 1941. Present position, 1941–

SWEET, PAUL C., *Associate Professor of Physical Education and Athletics*
B.S., University of Illinois, 1923; graduate study, the University of Southern California, 1938, University of New Hampshire, second semester, 1939. Director of athletics and physical education, Elko, Nevada, County high schools, 1923–24. Instructor in physical education and athletics, 1924–27; assistant professor of physical education and athletics, 1927–41; present position, 1941–

TAUDVIN, LILLA N., *Circulation Librarian*
B.A., Wheaton college, 1936. Librarian, New England Conservatory of Music, 1936–40. Present position, 1940–January 31, 1942. (Resigned.)

TAYLOR, FREDERICK W., *Director of the Agricultural Service Departments of the College of Agriculture*
B.S., Ohio State university, 1900. Assistant, Ohio Experiment station, 1900–01; government soil survey for the U. S. Department of Agriculture, 1901–03. Professor of agronomy and agronomist of the Agricultural Experiment station, 1903–32; dean of the College of Agriculture, 1915–33; director of the commercial departments of the College of Agriculture and agronomist of the Agricultural Experiment station, 1933–37; present position, 1937–

TEPPER, ALBERT E., *Assistant Professor of Poultry Husbandry and Assistant Poultry Husbandman of the Experiment Station*
B.S., Pennsylvania State college, 1928; M.S., University of New Hampshire, 1930; Ph.D., University of Maryland, 1941. Poultry certification inspector in the Agricultural Experiment station, 1930–31; instructor in poultry husbandry and assistant poultry husbandman, Experiment station, 1931–41; present position, 1941–

THOMAS, GEORGE R., *Associate Professor of Architecture*
B. Arch., Carnegie Institute of Technology, 1930. Columbia university, summer 1938. European travel and study, June–September, 1933. In employ of architects: Neff and Thompson, Norfolk, Virginia; Parks and Baxter, Washington, D. C. Instructor, history and appreciation of art, Virginia Teachers college (Fredericksburg), summer, 1935. Instructor in architecture, 1930–34; assistant professor of architecture, 1934–41; present position, 1941–

THUT, I. N., *Assistant Professor of Education*
B.S., College of Wooster, 1929; M.Ed., University of Buffalo, 1938; Ph.D., Ohio State university, 1940. Teacher and principal, rural schools, Ohio and New York, 1925–26, 1929–31; industrial work, Pennsylvania, 1931–34; educational publication work, New York, 1935–38; university scholar, Ohio State university, 1938–40, assistant, summer 1940, instructor, 1940–41. Present position, 1941–

TIRRELL, LORING V., *Professor of Animal Husbandry*
B.S., Massachusetts Agricultural college, 1920; graduate study, *ibid*, 1940–41. Instructor, Massachusetts Agricultural college, 1920–21. Instructor, University of New Hampshire, 1921–25; assistant professor, 1925. Extension specialist in sheep and livestock, Connecticut Agricultural college, 1926–30. Associate professor of animal husbandry, 1930–36; present position, 1936–

TONKIN, JOHN C., *Instructor in Mechanical Engineering, Machine Shop*
Machinist and toolmaker, 1901–10. Instructor in machine work and forging, and mechanician to the laboratories, New Hampshire college,

1910–12. Director of Manual Training, Waltham, Mass., 1912–16; Watertown Arsenal, 1917–20; instructor in Mechanical School of American forces in Germany, 1920–21; foreman in machine shops in Lowell and Boston, 1921–24. Present position, 1924–

TORGESEN, JOHN L., *Instructor in Chemistry*
B.S., University of Idaho, 1935; M.S., *ibid.*, 1937; Ph.D., Columbia university, 1942. Graduate assistant in chemistry, University of Idaho, 1935–37; assistant in chemistry, Columbia university, 1937–41. Present position, November 1, 1941–

TOWLE, CARROLL S., *Associate Professor of English*
A.B., Bowdoin college, 1922; Ph.D., Yale university, 1933. Instructor, University of Texas, 1923–26. Professional study, first semester, 1941–42. Teaching assistant, Yale university, 1926–29; instructor, Yale university, 1929–31. Assistant professor of English, 1931–39; head, Writers' Conference, University of New Hampshire Summer school, 1938, 1939, 1940, 1941; present position, 1939–

TOZZER, CAROLINE M., *Teaching Fellow in the Department of Languages*
B.A., Smith college, 1941. Present position, 1941–

TRAVER, PAUL C., *Instructor in Applied Farming*
B.S., University of New Hampshire, 1936. Graduate study, Cornell university, summer 1936. Teacher, Brookfield, New York, Central school, 1936–37; sub-master, Orford, New Hampshire, High school, 1937–41. Present position, 1941–

TRITT, CHARLES W., *Graduate Assistant in Music*
B.M., DePauw university, 1938; graduate study, Ball State college, summers, 1939, 1940. Supervisor of music, Lowell District High school, Indiana, 1938–40; organist, choir director, First Methodist church, Crown Point, Indiana; director, Festival Chorus, Lowell, Indiana. Present position, 1940–

TYRRELL, DORIS E., *Assistant Professor of Economics*
B.S., University of Minnesota, 1926; M.A., *ibid.*, 1932; graduate study, *ibid.*, 1932–34; Columbia university, summer, 1936. Teacher, Crosby-Ironton High school, 1922–25; Milwaukee university school, 1926; Stephens College for Women, 1927–31; assistant, University of Minnesota, 1931–33; instructor, *ibid.*, 1932–34; Ironwood Junior college, 1934–38. Instructor in economics, 1938–40; present position, 1940–

VAN TUYL, DONALD W., *Graduate Assistant in Civil Engineering*
B.S., Northeastern university, 1940. Present position, 1940–

WADE, ELEANOR H., *Graduate Assistant in the Department of Physical Education for Women*
B.S., The Woman's College of the University of North Carolina, 1941. Present position, 1941–

WADLEIGH, CLARENCE B., *State Club Leader, Extension Service*
B.S., New Hampshire college, 1918. Institute of coöperation, University of New Hampshire, 1932. 4-H county club leader, New Hampshire college, 1918–19; milk tester, New York State, 1919–20. Acting State club leader, 1920–21; present position, 1921–

WALLER, ERNEST F., *Assistant Professor of Poultry Husbandry and Poultry Pathologist, Agricultural Experiment Station*
D.V.M., Iowa State college, 1931; M.S., *ibid.*, 1939. Assistant professor, Iowa State college, 1934–40. Present position, 1941–

WALSH, JOHN S., *Associate Professor of Languages*
A.B., Harvard university, 1915; M.A., Boston university, 1928. Taught in private and public high schools of Massachusetts and New Jersey. Instructor in languages, 1922–26; assistant professor, 1926–29; acting head of the department, 1929–31; present position, 1929–

WALTER, DAVID O., *Assistant Professor of Government*
A.B., Williams college, 1931; A.M., Harvard university, 1933; Ph.D., *ibid.*, 1937; J.D., University of Illinois, 1941. Instructor, Cornell university, 1933–37; University of Illinois, 1937–40. Present position, 1940–

WARFEL, HERBERT E., *Assistant Professor of Zoölogy*
A.B., Western State college, Colorado, 1926; M.S., Oklahoma university, 1928; graduate study, Cornell university, 1937–38. High school teacher in North Dakota, Colorado, Oklahoma, 1921–31; assistant professor, Massachusetts State college, 1931–39; instructor, University of Maine, summer, 1933. Biologist, New Hampshire Fish and Game commission, 1939–42. Present position, 1939–

WASHBURN, EMILY, *Periodicals Librarian*
B.S., Simmons college, school of social work, 1922; Graduate, Pratt Institute Library school, 1934, B.L.S., *ibid.*, 1941. Teacher, Waynflete Latin school, Portland, Maine, 1922–26; associate general secretary of Y.W.C.A., Portland, Maine, 1926–29; substitute librarian, medical library of Massachusetts General hospital, 1931; librarian of The Joseph Conrad Memorial library, Seamen's Church institute, New York city, 1934–35. Circulation librarian, 1931–33; reference librarian, 1935–40; present position, 1940–

WEBBER, LAURANCE E., *Research Assistant Professor of Industrial Engineering*
B.S., University of New Hampshire, 1934; M.E., *ibid.*, 1940. Mechanical inspector, U.P.M. Kidder Press company, Inc., 1934–37. Research assistant in industrial engineering, 1937–41; present position, 1941–

WEBSTER, ROBERT G., *Assistant Professor of English*
B.A., University of New Hampshire, 1926; M.A., *ibid.*, 1930. Student, Oxford and Cambridge universities, England, 1934–35. Gradu-

ate assistant in English and assistant in publicity, 1927; instructor in English, 1927–36; present position, 1936–

WELCH, ALBERT G., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1936, M.S. in Eng., *ibid.*, 1941. Second lieutenant, United States army, 1936–37. Instructor in mechanical engineering, 1937–40; present position, 1940– (Entered military service, January 1, 1941–)

WESTON, RUTH C., *Club Agent in Belknap County*
B.A., New Hampshire college, 1921. Teacher, Temple, Walpole, and Hancock, New Hampshire. Boys' and Girls' Club agent in Cheshire county, 1929–36; acting Boys' and Girls' Club agent in Belknap county, 1936–37. Present position, 1937–

WHIPPEN, NORMAN F., *Club Agent in Sullivan County*
B.S., New Hampshire college, 1918. Farmer, Chittenango, New York, 1919–20; milk tester, New York State, 1920. Boys' and Girls' Club agent, Merrimack county, University of New Hampshire Extension service, 1920–23. Boys' and Girls' Club agent, Hampshire County, Massachusetts Agricultural college, 1923–26; superintendent, Hillside School for Boys, Greenwich, Mass., 1926–27. Present position, 1928–

WILBUR, MARY E., *Physician*
B.S., University of New Hampshire, 1933; M.D., Tufts college Medical school, 1937. Private practice, Portsmouth, New Hampshire, 1938–. Present position, January 27, 1941–

WILLIAMSON, DAISY D., *State Home Demonstration Leader*
B. of H.E. (hon.), Normal school, Muncie, Indiana, 1917. Study, Normal school, Terre Haute, Indiana, 1900, 1907, 1908, 1919; Huntington college, Indiana, 1916. Teacher, Mt. Vernon and Sidney, Indiana, 17 years; head of home economics department, Huntington college, 1916–19; home demonstration agent, Sullivan County, Indiana, 1919. Assistant State home demonstration leader, February–June, 1920; present position, 1920–

WILSON, HOWARD L., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1941. Present position, 1941–

WILSON, STANLEY E., *Instructor in Poultry Husbandry and Horticulture and Assistant Extension Poultryman and Assistant Extension Horticulturist*
B.S., University of New Hampshire, 1926, M.S., *ibid.*, 1941. Principal, Farwell Grammar school, North Charlestown, N. H., 1926–27. Boys' and Girls' Club agent in Belknap county, 1927–36; present position, 1936–November 15, 1941. (Resigned.)

WILSON, WILFRED K., *Instructor in Chemistry*
B.S., University of New Hampshire, 1939, M.S., *ibid.*, 1941. Graduate assistant in chemistry, 1939–41; present position, 1941–

WILSON, W. ROSS, *Agricultural Agent in Grafton County*
B.S., Cornell university, 1912. Instructor in dairying, 1912–16; assistant professor, 1916–17; present position, 1918–

WOODRUFF, RUTH J., *Dean of Women and Associate Professor of Economics*
A.B., Bryn Mawr, 1919; A.M., *ibid.*, 1920; Ph.D., Radcliffe, 1931. Assistant superintendent, Foulke and Long institute, Philadelphia, 1917; case worker, American Red Cross, Scranton, Pennsylvania, 1919; counselor, White-Williams foundation, Philadelphia, 1920–22; employment supervisor, public schools, Philadelphia, 1922–28; teacher, Northeast Evening High school, Philadelphia, 1923–28; Social case worker, Children's hospital, Boston, 1930; social case worker, Massachusetts Memorial hospital, Boston, 1931. Dean of women and assistant professor of economics, 1931–39; present position, 1939–

WOODWORTH, HARRY C., *Professor of Agricultural Economics, Agricultural Economist, Agricultural Experiment Station and Economist, Land Use Planning, Extension Service*
B.S., University of Illinois, 1909; M.S., Cornell university, 1916. Study under social science research fellowship, Harvard university, 1929–30. High school teacher, Wells, Minnesota, 1909–13; county agent, Minnesota, 1913–15; operator stock farm, Wells, Minnesota, 1916–21; farm management demonstrator, 1921; regional chief, land use planning section, resettlement administration, 1935–36; consultant, resettlement administration, 1936–37. Agricultural economist in the Agricultural Experiment station and farm management demonstrator in the Extension service, 1921–38; professor of agricultural economics in the College of Agriculture and agricultural economist, Agricultural Experiment station, 1938–41; present position, 1941–

YALE, WILLIAM, *Assistant Professor of History*
Ph.B., Sheffield Scientific school, Yale university, 1910; M.A., University of New Hampshire, 1928. Professional study, second semester, 1940–41. Private tutor, 1910–12; Standard Oil company of New York foreign service, 1913–17; special agent, department of state, 1917; American military observer, Egyptian Expeditionary Forces, 1918; expert on Arabian affairs attached to American commission to negotiate peace, 1919; technical adviser to King Crane committee, 1919; shipping and tourist business, Egypt, 1920–23; lecturing, writing, farming, 1923–27. Instructor in history, 1928–33; present position, 1933–

YEAGER, ALBERT F., *Professor of Horticulture, Horticulturist, Agricultural Experiment Station and Associate Director of the Biological Institute*
B.S., Kansas State college, 1912; M.S., Oregon Agricultural college, 1916; Ph.D., Iowa State college, 1936. Instructor, Pennsylvania State college, 1916–19; North Dakota Agricultural college, 1919–38; assistant professor, Michigan State college, 1938–39. Professor of

horticulture and horticulturist, Agricultural Experiment station, 1939–41; present position, 1941–

ZIMMERMAN, OSWALD T., *Professor of Chemical Engineering*
B.S.E. (Ch.E.), University of Michigan, 1929; M.S.E., *ibid.*, 1931; Ph.D., *ibid.*, 1934. Research chemist and chemical engineer, Simmons company, Kenosha, Wisconsin, 1929–30; research assistant, department of engineering research, University of Michigan, 1930–32; research chemist, school of dentistry, University of Michigan, 1932–34; research chemist and chemical engineer, Detroit Dental Manufacturing Co., Detroit, Michigan, 1934–35 and summers of 1937 and 38. Instructor of chemical engineering, University of North Dakota, September, 1935 to February, 1936; assistant professor of chemical engineering, *ibid.*, February to September 1936; associate professor of chemical engineering, *ibid.*, 1936–38. Associate professor of chemical engineering, 1938–41; present position, 1941–

MAJOR ADMINISTRATIVE ASSISTANTS

Evelyn H. Brettell, *Secretary to the Dean of the College of Liberal Arts*
Maisie C. Burpee, *Secretary to the Director of the Extension Service*
E. Prescott Campbell, *Purchasing Assistant, Business Office*
Louise M. Cobb, *House Director, Hetzel Hall*
Alice C. Currier, *House Director, Luella Pettee House*
Lillian F. Curtis, *Secretary to the President*
Arline B. Dame, *House Director, Fairchild Hall*
Esther M. Dunning, *House Director, Congreve Hall*
Howard W. Feindel, b.s., *Assistant to the Treasurer*
Mildred M. Flanders, *Secretary to the Dean of the College of Technology*
Virginia Hough, *House Director, Bickford House*
Helen F. Jenkins, *Secretary to the Faculty of the College of Liberal Arts*
Emma M. Kimball, b.s., *Assistant Manager, University Dining Hall*
Elizabeth B. Knowlton, *House Director, Commons, and Hostess of Dining Hall*
Helen H. Latimer, *Gas Analyst, Agricultural Experiment Station*
Albert D. Littlehale, *Shepherd, Agricultural Experiment Station*
Elizabeth E. McFadden, *Secretary to the Dean of the College of Agriculture and Director of the Agricultural Experiment Station*
Edna A. McLellan, *House Director, Smith Hall*
Elizabeth E. Mehaffey, *Mail Clerk*
Olive B. Moore, b.r.e., *Secretary to the Treasurer*
May E. Phipps, m.a., *House Director, Congreve North*
Margaret K. Rhome, m.a., *Secretary to the Dean of Men*
Beatrice M. Richmond, *Cashier, Business Office*
Edmund J. Rollins, b.a., *Acting Manager of the University Bookstore*
Betty G. Sanborn, *Seed Analyst*
Marcia N. Sanders, *House Director, Scott Hall*
Annie L. Sawyer, *Matron, Hood House*

THE UNIVERSITY OF NEW HAMPSHIRE

OBJECTIVES

Born in the humanitarian and idealistic fifties, the University of New Hampshire is dedicated to the education of the state. It conceives its duty to be of use to all and not to youth alone.

If primarily an institution for resident teaching, it also enters every shop, every hotel, every manufactory, every farm, every home in the state, for it understands the field of education to be all-inclusive.

In its classrooms, laboratories, and shops it teaches with little regard for precedent whatever is desired, but it will also strive with equal zeal to make it possible for all to find that which is desirable.

It exists not for one group nor for one class, but for all, and its buildings and its campus it would make a meeting place and a rallying place where growth may come to all.

HISTORY

Seventy-seven years ago, in 1866, the State of New Hampshire accepted the provisions of the federal Morrill act and established the New Hampshire College of Agriculture and the Mechanic Arts.

This national legislation, which had been approved by President Lincoln in 1862, provided for an allotment of public lands to each state for instituting such a college. In place of land New Hampshire accepted scrip and, selling this for $80,000, founded the college at Hanover in conjunction with Dartmouth College. For a quarter of a century the institution remained a branch of Dartmouth with an average enrollment of about 25 students. In 1888 through the federal Hatch act a State Agricultural Experiment station was also established as a part of the college.

Meanwhile, there lay in a legal adviser's safe in Durham the will, made in 1856, of a farmer, Benjamin Thompson, bequeathing his entire estate to the people of New Hampshire on condition that the state establish on his land a college of agriculture. No one had known of his proposed philanthropy. The Thompson estate then amounted in land and securities to $300,000, but this was to lie untouched, at compound interest, for a period of 20 years. When, at last, in 1912 it first became available, it amounted to approximately $800,000.

When the terms of the will became known in 1890, the legislature promptly made the necessary enactments to establish the college at Durham. The enthusiastic senior class of 1891 journeyed down from Hanover to hold its commencement exercises in the college's first new building—a cow barn. As rapidly as possible, the state erected four other buildings, Thompson hall, Conant hall, Nesmith hall, and the college shops, which were ready for occupancy in 1893 by a group of 64 students, including 10 women.

In 1911 the trustees authorized the setting up of an Agricultural Extension service which was further developed by federal and state appropriations to make possible headquarters with county extension agents in each county of the state.

By 1914 constant expansion of the student body resulted in an administrative division of the college into three groups: agriculture, engineering, and arts and sciences.

Moved by a devoted alumni body and the more than 1,000 students then enrolled, the Legislature in 1923 renamed the college the University of New Hampshire, creating within it the three colleges of agriculture, technology, and liberal arts, and two years later permanently provided for its support by granting it an annual income of one mill for each dollar of the assessed valuation of all taxable property in the state.

Today the university comprises the three colleges, the Agricultural and Engineering Experiment stations, the General Extension service, the Summer school, the Graduate school, the Marine Zoölogical laboratory at the Isles of Shoals, and the Forestry Summer camp in the White Mountains. The annual enrollment has now reached more than 3,400 students.

ORGANIZATION

The government of the University of New Hampshire is vested in a board of trustees, thirteen in number, of which the governor of the state, the commissioner of agriculture, and the president of the university are members *ex officiis*. Two members, one of whom must be a resident of New Hampshire, are elected by the alumni of the university, and eight members are appointed by the governor.

The university senate, a representative body elected by and from the faculty, has legislative jurisdiction in matters of student government and educational policy. Within the senate is the university council which acts in an advisory capacity to the president and serves as an executive committee between meetings of the senate. Details of the university organization are given in the current *Faculty Handbook*.

INSTRUCTION

Resident Instruction is offered in the College of Agriculture, the College of Technology, the College of Liberal Arts, the department of physical education for men, the department of military science and tactics, and the Graduate school. The offerings of all these divisions except the last mentioned are described in this volume. Detailed information concerning the Graduate school and other divisions not listed above are described in special catalogs or bulletins which may be secured from the registrar.

The Graduate School is designed to meet the needs of superior students for a more advanced training than may be obtained in an undergraduate curriculum. Graduate work is offered by competent members of the university departments of instruction and research, who constitute the school faculty. Administrative functions and supervision

of advanced students are delegated to the dean of the Graduate school and the committee on graduate study. A bachelor's degree or its equivalent from an approved college or university is a requisite for advanced study, but this does not imply admission to candidacy for a graduate degree. Requirements as to residence, credits, thesis and examinations must be met by candidates for advanced degrees.

THE SUMMER SCHOOL has been since 1922 an integral part of the university program. Prior to that time, 1894 to 1897, a Summer school in biology had been conducted. Courses are offered in the Summer school by the three colleges and the Graduate school to meet the needs of: teachers, administrators and supervisors of elementary and secondary schools; students seeking special professional preparation or working for undergraduate or graduate degrees; students anticipating courses or supplying deficiencies; qualified and mature persons who wish courses for general cultural purposes. Qualified teachers in method and subject-matter are drawn from the university faculty and are supplemented by specialists selected for their attainments in particular fields at other institutions. The twenty-second session of the Summer school will consist of two terms: the first, from June 28 to August 6; the second, from August 9 to September 17, 1943. The catalog of the Summer school gives specific information as to courses.

In addition to the offerings available at the main campus at Durham summer instruction in marine biology and related fields is given at the Marine Zoölogical laboratory (see page 63) and in forestry and fish and game management at the Forestry Summer camp (see page 63).

UNIVERSITY DEGREES.—A student who is a candidate for a degree must meet all the requirements of his elected curriculum as set forth in the catalog for the year in which he first pursues that curriculum. He must also meet such new regulations as may be subsequently adopted by the university and made applicable to him; and he is also held responsible for such other rules or regulations as may be published in the Official Handbook for Students. The following degrees are conferred:

Graduate School—Master of science, master of arts, master of education, and master of science in engineering.

College of Agriculture—Bachelor of science.

College of Technology—Professional degrees of mechanical engineer, civil engineer, electrical engineer; bachelor of science in architecture, chemistry, chemical engineering, civil engineering, electrical engineering, mechanical engineering.

College of Liberal Arts—Bachelor of arts; bachelor of science.

CERTIFICATE

College of Agriculture—In the Applied Farming course, a certificate of graduation.

RESERVE OFFICERS TRAINING CORPS.—In coöperation with the United States War department, the university maintains two units of the Reserve Officers Training corps as a part of the federal system to provide

systematic military training for school and college students and to train selected students as officers of the Reserve corps of the army.

While the War department supervises the training, details Regular, Reserve, and non-commissioned officers of the Army as instructors, and loans the necessary equipment, students undergoing this instruction and who are members of the R.O.T.C. are in no way members of the military forces of the government. They remain civilians and, as regards obligations to serve the government, are in the same category as students not members of the R.O.T.C.: that is, enrollment in the R.O.T.C. involves no additional obligations as to service.

The cadets are furnished with a uniform which is worn during military instruction only. An expense to them is the purchase of belt, cravat, shirt and one or two text books.* Only tan shoes and tan socks are authorized to be worn with the uniform. Students (freshmen and sophomores) pursuing the basic course are issued attractive uniforms of good quality; advanced students (juniors and seniors) purchase their uniforms with an allowance provided by the government. This uniform is suitable for use after graduation upon the student's becoming a reserve officer.

Military science is a required course for all male students, not especially excused, who are members of the freshman and sophomore classes. Students of the Colleges of Liberal Arts and Agriculture are assigned to the infantry unit. Students of the College of Technology are assigned to the coast (heavy and anti-aircraft) artillery unit. At the conclusion of the first two years, those students who elect, and who are considered especially qualified, are given the opportunity to continue with the advanced course, subject to congressional limitations as to numbers. Students completing four years satisfactorily are commissioned in the Officers' Reserve corps of the United States army.

Both the coast artillery and the infantry courses include military fundamentals. The object of this training is to inculcate habits which make for success in civil as well as military pursuits; physical stamina, good carriage, courtesy, punctuality, neatness in dress and person, attention to duty, high personal integrity, and loyalty.

In addition, the coast artillery course covers the construction, use and care of artillery material, heavy guns, coast and anti-aircraft gunnery devices and motor transportation. To the engineering student this course offers, apart from the military training, an excellent opportunity to observe practical applications of his classroom work and to enlarge his view of the engineering field.

The infantry course covers the organization, equipment, tactics and administration of the basic and numerically greatest arm of the service.

* A deposit of $15 is required of each student having military equipment in his possession, whether registered for military science or not. At the end of the academic year or upon a student's severing his connection with the university this deposit will be refunded to him upon the satisfactory return to the university of all military property loaned except that a reasonable deduction will be made to cover any damage beyond natural wear and tear or for the loss of any of the equipment.

This course stresses theoretical and practical knowledge of personnel problems and emphasizes leadership.

Advanced students (juniors and seniors) who elect and are selected to continue with the third and fourth years, and who fulfill the required conditions including attendance at the prescribed summer camp, are allowed commutation of subsistence, a uniform allowance, travel expenses to and from camp as well as a per diem allowance while attending camp. The cash value of these for the two years is, at present, about $200. The student is not bound to remain in college nor is he bound to any military service during his course or thereafter. He is required, once having enrolled for the advanced course, to complete it as a prerequisite to graduation, and to observe the rules and regulations governing the corps.

The summer camp, of six weeks' duration, is normally held at the end of the junior year. Here opportunity is offered to meet students of other colleges. The courses taken on the campus are elaborated upon with special attention to the practical side. Since the student is furnished an appropriate uniform for wear during this period, his only expense is for such personal items as he may wish to make. The Regular army or Reserve officers in charge insure proper healthful living conditions, including wholesome food, as well as proper discipline and a healthy moral tone. Medical officers guard the student's health and athletics are encouraged. These camps offer the student scope to enlarge his experience while occupied in activities, mental and physical, that minister to his development.

Enrollment of students who have passed their 26th birthday will not be made in the R.O.T.C.

No member of the active personnel of the Army, Navy, or Marine Corps of the United States, or any commissioned officer of the National Guard or Naval Militia, or Reserve officer of the military forces of the United States is eligible for membership in the R.O.T.C.

The fact that an applicant is a member of the Regular Army Reserve does not make him ineligible for enrollment providing he is otherwise qualified.

Instruction in Pottery and Woodcarving.—In coöperation with the New Hampshire League of Arts and Crafts experimental studies in ceramics are conducted and instruction in pottery and woodcarving is offered.

Civilian Pilot Training Program.—Since the summer of 1940, the university in coöperation with the Civil Aeronautics administration has offered to qualified students a combined ground and flight training course leading to a private pilot certificate. Instruction in the ground course is given at the university while flight instruction is conducted at the Portsmouth airport.

Engineering Defense Training.—In coöperation with the United States Office of Education, the university is offering short intensive

engineering courses both to prepare young men for positions in defense industries and to upgrade employees already employed in those industries. During the past year, approximately 150 young men have gone directly from these intensive training courses into such defense industries as machine companies, aircraft factories, shipbuilding companies, electrical service companies, and navy yards as junior draftsmen, welders, tracers, machine operators, apprentices, inspectors, and production assistants.

Conferences, Institutes, and Short Courses.—In its endeavor to serve the needs of the state and region, the university conducts or sponsors many conferences, institutes, and short courses. To mention but a few of the more important ones, the following are selected from among those held during 1940–41: Institute of Public Affairs, Library institute, Conference on Engineering Education, Police Officers' Training school, Elementary Education conference, Guidance Institute, Writers' conference, Youth institute and the Young Farmers' Short Course.

Instruction of Less than College Grade is made available by the university in the Applied Farming course. The purpose of this course, organized in the College of Agriculture, is to give the greatest amount of practical training that is possible during a two-year period of time to students who cannot attempt the four-year curriculum. Directly administered as a separate unit, a trained teacher is in charge with his own staff of instructors. Assistance from any of the college departments or personnel in curriculum matters is available. Any high school graduate of good character or any student who has completed a minimum of two years of high school and is 18 years of age or over, may be admitted. Two academic years of residence and field training of supervised farm experience during the summer months are required for graduation. A special bulletin of the Applied Farming course may be secured from the registrar or from the office of the Applied Farming course.

OTHER SERVICES AND FACILITIES

The General Extension Service is designed to make available to urban and rural areas the contributions of the university's research bodies and faculty, and to coördinate activities carried on with state agencies and organizations.

Rural work in agriculture and home economics is conducted coöperatively with the United States Department of Agriculture and the county farm bureaus through a staff of 58 members. Specialists conduct demonstrations in farm management, dairying, forestry, soils and crops, poultry, horticulture, marketing, engineering, nutrition, social organization and recreation, clothing and home management, and each county has agricultural, home demonstration, and 4-H Club agents.

The General Extension service is empowered to develop extension courses with or without university credit in centers within the state; to make lecture engagements for faculty speakers; to publish all official bulletins of the university; to operate the official news bureau; to conduct

the university broadcasting studio; to hold institutes either on or off campus; to conduct special short courses at the Crafts Cottage or other laboratories; and to develop the university moving-picture film service and other visual education activities. The work is under the administration of a director, and the staff is coördinate in rank with the resident teaching faculty.

THE AGRICULTURAL EXPERIMENT STATION conducts federal and state research and service work in agricultural problems. Projects of the station now include 96 investigations in agricultural science. Tests of seeds, fertilizers, and soils are conducted; plants and insects are identified; blood samples are tested; and post mortem examinations of animals are made. A wide range of subjects are covered in the publications of the station of which something like 50,000 are distributed annually and are free to those who can use them.

THE ENGINEERING EXPERIMENT STATION provides engineering and research facilities for industries of the state. Personnel, laboratories, and equipment of the College of Technology are available through this agency to manufacturers for the solution of technical problems.

THE BUREAU OF GOVERNMENT RESEARCH serves as a headquarters for the New Hampshire Municipal Association and acts as a clearing house for problems of governmental administration, pooling information of university technicians and state officials to assist governing agencies.

THE BIOLOGICAL INSTITUTE groups all plant and animal sciences together for research work and coöperates with state and federal departments and organizations in obtaining biological information. Major projects are now devoted to a long range program of conservation of natural resources, with special emphasis on wild life and health, and a biological survey of the state. In coöperation with the State of New Hampshire, the Biological Institute is conducting a survey of the resources of Great Bay and the adjacent coastal waters.

THE MARINE ZOÖLOGICAL LABORATORY, established in 1927, on Appledore Island, Isles of Shoals, is a complete unit within itself and offers summer instruction in various phases of marine biology. Located nine miles offshore from Portsmouth, the unit is provided with an abundance of marine life and affords opportunity for study and research for undergraduate or graduate students interested in teaching, biological research, or preparation for medical school. Boats and apparatus for dredging and ecological study are available as well as all types of microscopic equipment. Much of the work is conducted out of doors. Facilities include dormitories for men and women students, a faculty house, classrooms and laboratories, and a dining hall. (Not open 1942.)

THE FORESTRY SUMMER CAMP, located in the heart of the White Mountains at Passaconaway, includes a tract of 400 acres of timberland on which are examples of most of the northern forest types. The property is surrounded by the national forest which makes available to the

camp more than a half million acres of the finest woodlands in the East. Students are housed in an attractive building, formerly a summer hotel, affording adequate living facilities as well as drafting rooms, laboratory, and a darkroom. The boundary of a national game area of 60,000 acres is less than a half mile from camp, and the Bartlett Experimental forest is only a short distance away. National forest operations are carried on nearby and serve for purposes of instruction. Recreational activities include swimming, fishing, tennis, and mountain climbing. There are 50 mountain peaks within a 10-mile radius. Bartlett, Conway, and North Conway villages are easily accessible.

The Hamilton Smith Library serves faculty and students of the university, the townspeople of Durham, and so far as possible the people of the state through coöperation with other libraries.

The library collection now consists of 114,000 volumes. Approximately 1,000 periodicals are received currently. The library is an official depository for United States government publications and, as such, receives most publications so available. While the major part of the book collection is housed in the main building (see page 66), certain departmental libraries have been established in other campus buildings, including the Plant and Animal Science library in Nesmith Hall, the Bureau of Government Research library in Morrill Hall, the Chemistry library in James Hall, and the DeMeritt Hall library which contains material relating to engineering, architecture, and physics. Noteworthy collections in the main library include the 3,500 volume New Hampshire collection and the Fine Arts collection.

The Undergraduate Reading Room was opened September 1941. Beautifully furnished, it is a commodious and comfortable reading room. It is under the direction of a Readers' Adviser whose main function is to stimulate and direct reading.

The library contains an Art center which houses the Carnegie college music set of 1,000 records, 250 books and miniature scores, a phonograph, album shelf, and index. Three sound-proof auditory rooms with phonographs enable the student to listen to the best in recorded music. The Philip Hale room, largest of the auditories, contains the desk, chair and many of the books of the late music critic and is used for group music appreciation. Other features of the art center include the permanent art collection and loan exhibitions displayed throughout the college year. An art rental plan enables students for a small fee to secure framed reprints of favorite works for use in their dormitory rooms.

Library rules are published in the *Library Handbook* which should be consulted for further information. Library instruction is given to incoming freshmen by the resident staff.

The University Health Service maintained at Hood house (see page 69) is devoted to the protection, improvement, and mainntenace of student health, and includes the infirmary, a university physician, and a staff of registered nurses. Individual health guidance is given through

personal conferences, treatment, and coöperation with family physicians.

The services of the university physician are confined to illness that may be cared for by office calls, dormitory visits, and infirmary confinement and injuries to athletes during training or contests.

Injury or illness requiring X-ray examinations, hospital confinement (other than in Hood house), the services of specialists, operations, ambulance service, a special nurse or special prescriptions are at the expense of the student.

Students while at Hood house are charged $1.00 a day for its use. Office calls are free between the hours of 8.00 A.M. and 5.00 P.M.; at other times there is a charge of $1.00, although this fee may be cancelled by the university physician if he finds that the onset of the illness or injury occurred at such a time as to make necessary a call during this period. When a student who has been attended by the Hood house staff is asked to return for treatment or observation after hours, no fee will be charged.

THE BUREAU OF APPOINTMENTS assists seniors and alumni to secure positions after graduation. It corresponds with and interviews school superintendents, personnel managers of industrial concerns, institutional managers, and others who employ college graduates, calling to their attention seniors and alumni who are seeking positions. The bureau also assists in finding opportunities for men students for employment in and about Durham. A series of vocation days is conducted by the bureau for three days each year to inform students on the technique of job getting and some of the fields open to the college graduate.

MUSEUM COLLECTIONS—Though the university has no museum, there are several collections housed in various buildings. At present specimens are being collected to illustrate the zoölogy, geology, entomology, and Americana of New Hampshire. Many New Hampshire collectors and naturalists have made the university their permanent depository.

RELIGIOUS ACTIVITIES. Opportunities are provided in Durham for students to practice religion and to participate in religious life. Christian Work, the Newman Club, and the Hillel Club, are (page 89) the agencies through which the religious interests and life are fostered among the students.

The Durham Community Church welcomes students to its many services of worship, to Sunday evening programs, and to share church activities through student affiliate membership. The pastor is *ex officio* a member of the staff of Christian Work, Inc.

The Roman Catholic Church provides a Chaplain for the Newman Club and holds Sunday Mass at ten o'clock in Murkland Auditorium.

UNIVERSITY LANDS AND BUILDINGS

University lands comprise approximately 2,300 acres. Lands at Durham total about 1,500 acres, of which some 155 acres are devoted to the campus proper and athletic fields; 257 acres to hay, tillage, orchards, and

gardens; 558 acres to forest, wood and brush land; 450 acres to pasture; and 18 acres to ponds.

Buildings for Administration, Instruction and Research

Thompson Hall (1893), the general administration building, is named for Benjamin Thompson, benefactor of the university. It contains the offices of the president, the business office, the registrar, bureau of appointments, alumni secretary, deans of men and women, dean of the graduate school, and the officers of the General Extension service. Located on the third floor are the library and studio of the music organizations, the office and classroom of the oral English section of the English department, and the university radio studio.

Conant Hall (1893), named for John Conant of Jaffrey, a generous friend of the college, houses the departments of civil engineering and geology and the Engineering Experiment Station. A government weather observatory is located here to serve airline travel through regular daily recordings of weather conditions.

Nesmith Hall (1893), the headquarters of the biological institute, houses all university plant and animal science departments except dairy husbandry. One of the four original campus buildings, it has been enlarged and renovated into a modern science center, four times its former size. It is named for Judge George W. Nesmith of Franklin, a former trustee president.

Charles E. Hewitt Hall (1893) houses the laboratories in machine, wood, forge, automotive, and shop work. Located also in this building is the Photo-Visual Service including studio, laboratory, and darkrooms and the cold storage plant used by the department of horticulture for the fruit from the university orchards and as a laboratory for instruction in the handling and storage of horticultural products.

Morrill Hall (1902) serves as the headquarters for the College of Agriculture, the Bureau of Government Research, and the departments of social sciences including economics and accounting, sociology, history, agricultural economics, and government. It is named for Senator Justin Morrill of Vermont, sponsor of the Land Grant act.

Ballard Hall (1905) affords classroom and office facilities for the department of music, houses the pottery laboratory, and serves as headquarters for *The New Hampshire*, *The Granite*, and a number of student organizations.

New Hampshire Hall (1906, remodeled in 1940) provides facilities for physical education for women and for student organizations including the Hillel Club, the Newman Club, and the Student Christian Movement; it contains a lounge room, an auditorium seating 1,400 and a completely equipped stage for dramatic productions.

Hamilton Smith Library (1907) was erected by means of a union of funds left by Hamilton Smith of Durham for a town library building and

funds from the Carnegie corporation and the State. In 1937 large wings were added to each side of the original building thereby doubling reading and service areas. The next year the entire second floor was remodeled to include sound-proof music listening rooms, an exhibition gallery, and a fine arts reading and reference room. In 1940 a new stack wing was added. This made possible the opening of the new Undergraduate Reading Room in September, 1941.

Dairy Building (1910) is arranged and equipped for purposes of instruction in dairy husbandry and manufacture.

DeMeritt Hall (1914), named for Albert DeMeritt of Durham, is the headquarters of the College of Technology and includes classrooms, laboratories, and offices of the departments of mechanical and electrical engineering, physics, and architecture.

Murkland Hall (1927), named for Charles Sumner Murkland, president from 1893 to 1903, is the headquarters of the College of Liberal Arts and includes classrooms and offices for the departments of English, languages, mathematics, education, and hotel administration.

Charles James Hall (1929), bearing the name of a former professor of chemistry, provides lecture rooms and laboratories for instruction and research for the departments of agricultural and biological chemistry, chemistry, and chemical engineering.

Pettee Hall (1938), named in honor of the late Dean Charles H. Pettee, houses the departments of agricultural engineering, home economics, and military science.

Textile and Craft Cottage is equipped with looms, rug frames, tools, and supplies for several types of hand craft projects.

Animal Nutrition Laboratory is maintained for the research studies in animal metabolism that have been conducted by the Agricultural Experiment station in coöperation with the Carnegie Institution of Washington.

Buildings and Grounds Service Building (1940) contains the office of the superintendent of properties, shops and storage rooms of the buildings and grounds service departments and the university rifle range. The university and Town of Durham fire station is also located in this building.

FARM LANDS AND BUILDINGS

The University Farm, maintained for instruction and research, includes the 25-acre horticultural farm, the poultry plant, the several livestock barns, extensive greenhouses, and the university forest. The horticultural farm has buildings of its own, an unusually fine orchard site, acreage for small fruit and vegetable production, an apiary, and a packing plant equipped with a grader and other apparatus for the handling of fruit. In the poultry unit are several houses and range facilities, a

special pathological laboratory for disease diagnosis, and experimental flocks of hens, turkeys and geese. Livestock barns include the dairy barn (1932), providing accommodations for 120 dairy animals and containing a modern milk house; the stock barn, housing purebred herds of cattle and sheep, and thoroughbred stallions; the stable of the New Hampshire Racing commission; the horse barn; the experimental sheep barn; and the piggery. The university forest has 550 acres of old and second growth timber and a nursery for the growing of seedling trees.

ATHLETIC FACILITIES

University Field House (1938) has a main floor area of nearly half an acre providing opportunity for indoor football and baseball practice and track. A movable wooden floor and bleachers for 2,500 spectators are installed for basketball. Offices and classrooms of the department of physical education for men are also located here.

New Hampshire Hall (1906 and 1940) accommodates the department of physical education for women (see page 66).

Lewis Fields (1936), outdoor recreational center, are named for Edward Morgan Lewis, president from 1927 to 1936. They include six fields for football, soccer, and lacrosse, four baseball diamonds, a cinder track with a 220-yard straightaway, pits and runways for jumping and vaulting, fourteen composition and six clay tennis courts, concrete bleachers seating 1,750 spectators at baseball games and concrete stands seating 5,000 spectators at football and track and field contests. The entire equipment was built in coöperation with Federal work-relief agencies. Materials used in the construction of the main field stands were provided by alumni of the university as the first project of the Alumni fund.

Brackett Field (1936), the varsity baseball field on Lewis Fields, is named in honor of William H. L. Brackett, '14, prominent student leader of his college generation who died from wounds received during the World War.

Memorial Field (1922), outdoor recreational center for women students, was the first gift of major importance from the alumni to the university and is a memorial to the eighteen New Hampshire men who lost their lives in the World War.

Swimming Pool (1938) is available for general swimming and classes of instruction. Life-guard service, maintained by the university, a graduated diving tower, and dressing and locker facilities are features of the swimming unit. The water is scientifically treated through a filtration plant. In the winter months the pool provides skating facilities.

RESIDENTIAL HALLS

Commons (1919) contains the freshman dining hall, the guests' dining room, the president's dining room, a cafeteria, a trophy and lounge room,

student organization rooms, and dormitory facilities for 43 undergraduate men.

Fairchild Hall (1916) honors Edward Thomson Fairchild, president from 1912 to 1917. It furnishes accommodations for 114 undergraduate men.

East and West Halls (1918), erected by the United States government to furnish housing facilities for troops in training at the college during World War I, provide comfortable quarters at low cost for 211 men.

Bickford House (1895) furnishes quarters for 20 undergraduate women.

Smith Hall (1908), originally constructed through the generosity of Mrs. Shirley Onderdonk of Durham as a memorial to her mother, Mrs. Alice Hamilton Smith, furnishes rooming facilities for 63 women students.

Congreve Hall (1920).—The first unit was built with funds made available through the will of Mrs. Alice Hamilton Smith of Durham and bears her daughter's name. A second unit was added in 1938, and the building completed in 1940. Congreve hall now accommodates 232 undergraduate women.

Hetzel Hall (1925), named for Ralph D. Hetzel, president from 1917 to 1927, accommodates 153 undergraduate men.

Scott Hall (1932), named for Clarence Watkins Scott, professor of history from 1879 to 1930, furnishes accommodations for 119 undergraduate women.

Elizabeth DeMeritt House (1931), named for Mrs. Elizabeth P. DeMeritt, dean of women from 1919 to 1931, and maintained for practice in home management, is a modified Cape Cod cottage, thoroughly equipped with modern household devices. It houses six resident students, two instructors, and a play school for pre-school children.

Charles Harvey Hood House (1932), an infirmary, is the gift of the late Charles Harvey Hood and Mrs. Hood of Boston. It was presented to the trustees with funds for its maintenance in 1930, the fiftieth anniversary of Mr. Hood's graduation from the University of New Hampshire. Hood house is the headquarters for the University Health service (see page 64). It is furnished in a homelike style and is completely equipped. Thirty patients may be normally accommodated in the wards and private rooms. The office of the university physician and quarters for the staff of registered nurses are located here.

Luella Pettee House (1941), named for Mrs. Luella Pettee, wife of former Dean Charles H. Pettee, accommodates thirty undergraduate women.

GENERAL INFORMATION

METHODS OF ADMISSION

The university will admit without examination properly prepared New Hampshire students who are graduates of high schools or academies of New Hampshire that are approved by the State Board of Education, or those who are graduates of other accredited preparatory schools.

Applicants whose records do not give evidence of capacity, disposition, and preparation adequate for successful college study may be required to withdraw their applications or to submit to examinations to determine their fitness for college study. This applies directly to those who stand in the lower three-fifths of their respective classes in the secondary school, and to others concerning whose qualifications there may be doubt. In so far as is practicable, officers of the university will arrange for personal conferences with such applicants.

The number of non-state students admitted each year is limited to a small proportion of the student body. Selection of out-of-state candidates is made primarily on the basis of their high school records, but such traits as character, leadership, and initiative will be taken into account. Because of the large number of New Hampshire students needing financial assistance in the form of employment, out-of-state applicants will be expected to give evidence of reasonable financial backing.

Applicants for admission are required to fill out an application form prepared by the university. Copies of this form may be obtained from secondary school officials in New Hampshire or from the registrar of the university.

An applicant for admission who is a resident of New Hampshire is required to remit $10 with his application. One from outside the state is required to remit $25. If the applicant is admitted to the university, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. In the case of the applicant who is accepted for admission but does not enter, the advance payment will not be returned. Remittance should be made either by check or by money order payable directly to the University of New Hampshire and should be sent with the application for admission.

No applications for admission in September will be considered before the middle of the preceding February. To insure consideration before the out-of-state quota is filled, out-of-state students should file applications not later than the end of March. To insure eligibility for financial aid and a choice of dormitory rooms, in-state students should apply during the spring. It is understood that the preparatory work of students applying during the spring will be completed by the end of the school year.

Candidates for admission to the freshman class must show evidence, either by credential or examination, that they are prepared in 15 units.

An entrance unit represents one study of four or five recitations a week for one year. It is assumed that two hours of shop or laboratory work are equivalent to one hour of classroom work.

Preparatory subjects are divided into six groups. The minimum numbers of units which should be offered in each group are: Group A, English, 3; Group B, foreign language, none required; Group C, mathematics, 2 or 3* ; Group D, natural science, 1; Group E, social science (including history), 1; Group F, vocational subjects and miscellaneous, none required. Elective units may be offered from all groups, including a fourth year of English. At least 12 of the 15 units should be from Groups A, B, C, D, and E.

Cases not covered by the above statements will be decided by the Committee on Admission.

Candidates for advanced standing may be admitted on the basis of the work satisfactorily completed at the institution from which they come. Students leaving other institutions in poor scholastic standing will not be admitted.

Every candidate for admission claiming New Hampshire residence shall be required to procure a statement, signed by the town or city clerk, to the effect that his parents are residents of the town or city from which he purports to register. Students admitted from foreign countries or states other than New Hampshire shall be deemed to be non-resident students throughout the entire university course unless and until the parents shall have gained *bona fide* residence in New Hampshire.

Students entering the university must be in reasonably good health. Members of the entering class are given a thorough physical examination at university expense during Freshman week. Students who enter with advanced standing and freshmen who do not attend Freshman week must assume the expense of such an examination.

FRESHMAN WEEK

Freshman week was instituted at the University of New Hampshire in 1924. It is evident from a study of the results of the activities of this week that it has served as a valuable means of adjusting freshmen to their new environment, of creating right attitudes towards college work and of minimizing the usual delays during the first few weeks of the regular term. The week also affords an opportunity for the students to learn to know each other, to organize their efforts, to work together, to play together, and to become acquainted with the campus, the buildings, the faculty and with the courses of study and the traditions of the university.

Attendance of all freshmen throughout Freshman week will be obligatory. Any prospective candidate for the freshman class who is ab-

* This must be mathematics preparing for further mathematics; commercial arithmetic and shop mathematics are classed as vocational subjects. For students wishing to pursue courses in engineering or chemistry at least 3 units of mathematics must be offered, including elementary and advanced algebra and plane and solid geometry. Students planning to follow non-scientific courses in the College of Liberal Arts may substitute 2 units of a single foreign language for the 2 units of mathematics.

sent from the exercises will seriously imperil his admission to the university.

The so-called "placement tests" will be given shortly before the opening of college, or during Freshman week. Those admitted will be informed of the times and places of the examinations.

On the week end preceding Freshman week the Student Christian Movement at the University sponsors a camp open to all students entering the university for the first time. The Camp program under the direction of upperclassmen and faculty includes forums, discussions, worship services, and recreation. Announcements giving the dates, location, fees, and other details are mailed during August to all eligible students.

SPECIAL STUDENTS

A mature student who is not a candidate for a degree, upon presenting satisfactory evidence of his ability to carry successfully the desired courses, may be admitted as a special student for one year only, upon the approval of the committee on admission.

In choosing his studies he must have the approval of the head of each department in which he elects courses, and of the deans of the colleges concerned.

No credit earned by a special student shall count toward a degree except upon approval of the committee on admission.

ADVANCED STANDING

BY TRANSFER

Candidates for advanced standing from approved institutions may be admitted by the committee on admission. Their status in the University of New Hampshire will be determined by the quantity and quality of the work completed at the institution from which they come.

(1) Such students must present catalogs of the institutions from which they come (if requested) together with official certificates showing (a) all preparatory subjects accepted for entrance, (b) complete transcripts of records including grades of scholarship in each subject, (c) evidence of honorable dismissal.

(2) All candidates for the bachelor's degree, admitted to advanced standing, must spend their last year in residence, either in course or in summer school. This requires the completion of at least 32 semester credits.

(3) Regardless of the amount of advanced standing a student may secure, in no case will he be given a bachelor's degree until he has satisfied the full requirements of the curriculum he may elect.

BY EXAMINATION

Students twenty-five or more years of age, who desire to work for a bachelor's degree, may secure a substantial amount of the necessary credit by examination. Inquiries regarding the details of this arrangement should be addressed to the registrar.

FEES AND EXPENSES

Estimate of Freshman Expenses

	High	*Average*	*Low*
Room (Dormitories)	$120.00	$80.00	$64.00
Board (at Commons)	200.00	200.00	200.00
Tuition *	156.00	156.00	81.00 and a tuition grant
Uniform †	.....	.....	.....
Books	35.00	35.00	35.00
Laundry	35.00	20.00	15.00
Incidentals ‡	100.00	60.00	50.00
Total	$646.00	$551.00	$445.00
Expenses, First Semester	$343.00	$278.00	$233.00

Tuition—Tuition is $156 a year for residents of New Hampshire and $256 for non-residents. Tuition for each semester is payable in advance. Students who find it difficult or impossible to procure the necessary funds for the full amount due for a semester may make arrangements acceptable to the treasurer for a series of payments during a semester.

A commencement fee of $5 is charged prior to the granting of a degree. Charges will be assessed for extraordinary breakage or damage. Payment of the tuition entitles the student to admission to all home varsity athletic contests.

Advance Tuition Payment.—An applicant for admission who is a resident of New Hampshire is required to remit $10 with his application; one from outside the state is required to remit $25. If the applicant is admitted to the university, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be

* If not a resident of New Hampshire add $100 to high and average and $175 to low. If a resident and not a holder of a tuition grant, add $75 to low.

† Uniform for members of the Reserve Officers' Training corps is provided in coöperation with the Federal government. A deposit of $15 is required of each student to whom military equipment is issued.

‡ Expenses for travel, clothing, etc., vary with the individual student, and should be added. The Student Activity tax, authorized by vote of the undergraduate students with the approval of the Board of Trustees is paid by each undergraduate to a duly authorized representative of the Associated Student Organizations at the time of registration. The university business office will require evidence of the payment of the tax before registration receipt is issued. The revenue from the tax provides each student with *The New Hampshire*, semi-weekly newspaper; *The Granite*, university annual; student government and class activities. During 1941–42, the tax was $4.15 for men students and $5.00 for women. Every student participating in the program of physical education and athletics for men and physical education for women is required to deposit $1.00 for a locker; 75¢ of which will be refunded upon return of the lock to the equipment room; 25¢ to be retained to meet partially the expense of towel service.

returned. The advance payment of a student who is admitted but does not enter will not be returned.

BOOKS.—Students may purchase books, drawing instruments, and other supplies at the university bookstore in Thompson hall.

ROOMS.—The university has five dormitories for women and five for men. *Men of the upper classes may reserve rooms in Hetzel, Commons, and West halls. East and Fairchild halls are reserved for men of the freshman class. Certain rooms in Hetzel hall, not taken by upper classmen, may also be available to freshmen.* All rooms are heated, lighted and furnished. Bed linen, quilts and towels, however, are provided by the individual student. Each women's dormitory is equipped with a laundry. A service room is provided in each dormitory where grills and irons may be used with safety. Prices range from $64 to $120 a year. Applications for rooms in the dormitories should be addressed to The Dean of Men, University of New Hampshire, Durham.

Students living in university dormitories are required to sign room contracts covering the college year.

A five-dollar ($5.00) room deposit must accompany each application, this deposit to be forfeited if the room accepted is not occupied by the applicant. The deposit is held as a guarantee against breakage and will be returned at the close of the year or upon withdrawal.

Room rent is payable in advance in two equal installments, one not later than August 15 and one during the period for the payment of second semester fees. Rooms reserved will be held only until August 15 unless one-half of the annual rent is paid before that date.

Rooms paid for and not occupied one day after registration may be declared vacant and the room rent returned, unless the individual holding the reservation makes a written request to the dean of men to hold the room until a later date. The advance payment for the room will not be returned to those making this special request. No room will be reserved more than ten days after the registration date. Early application is necessary in order to secure a choice of rooms. Rooms in private dormitories or families may be secured for about the same prices as for those in college dormitories.

Women students, unless living at home, are required to room in one of the women's dormitories, or in approved houses. A competent house director is in charge of each women's dormitory.

BOARD.—A dining hall is operated and supervised by the university for the accommodation and benefit of the students. All freshmen, whose homes are not located in Durham, are required to board at the university dining hall. The aim of the compulsory regulation is to insure a broad fellowship in the class, and to safeguard the health of the first-year students by offering skilled dietetic oversight in the selection and preparation of their food. The dining hall is equipped with the best appliances for cooking and serving on a large scale, and is subject to constant sanitary inspection by the university physician.

Board is $200 for the college year, payable $100 at registration for each semester.

The dining hall is not operated for profit. Savings made possible by reduced costs of operation are passed along to the students in the form of a reduced board charge in the second semester.

A cafeteria is open to all students of the upper classes who may desire to take advantage of the low price and the high quality of food available at the university dining hall.

Checking Accounts.—Students are urged to arrange checking accounts in their home banks or to place money on deposit in the business office until needed, in order to avoid possible loss resulting from keeping on hand considerable sums of money. Such banking arrangements will also facilitate payment of registration bills which are due and payable during the stipulated registration periods. The business office will accept and cash student checks.

UNIVERSITY AID TO STUDENTS

SELF-SUPPORT

A great many students earn their education in part by means of their own labor during summers and while in college. During the college year 1940–41, 789 students found employment as library assistants, assistants in instructional and research laboratories, proctors in dormitories, clerks and office assistants, waiters in the dining halls, student janitors, and student workers on the farms and about the campus. Many others find employment each year in fraternities, sororities, and homes and stores in the community.

All students and prospective students are advised, however, to survey carefully their individual physical strengths and scholastic aptitudes before committing themselves to the arduous combination of intensive study and part-time employment.

Students are urged not to count too much upon earning their way the first year, and should be sure of at least $400 *from other sources, a low estimate of the first year's expense. Inquiries from men concerning self-support should be addressed to the Bureau of Appointments of the University.*

Student Employment Committee.—In order to insure an equitable distribution of university part-time employment, a committee of the faculty is charged with the responsibility of rating students for employment. The committee accepts no responsibility for the annual placement of students on jobs. Its function is to endeavor to certify only needy students as eligible to hold positions. Application blanks, obtainable at the office of the Student Aid committee, must be filled out and each student rated before he becomes eligible for a university position. Applications for federal aid work are also handled by the Student Aid committee.

In addition, the university bureau of appointments assists in finding

opportunities for men students for employment in faculty homes and about the village of Durham. In the fall and spring months freshmen may secure work several afternoons a week doing odd jobs or chores such as taking care of lawns, gardens and furnaces. By the end of freshman year they may have become familiar with opportunities to secure steady work, such as waiting on table, or serving as janitor in one of the university buildings.

Women Students.—Employment for women students, except for positions in the university offices or departments, is in the hands of the dean of women, and inquiries from women students should be addressed to her.

Freshman women are advised not to attempt to earn their room and board in private families unless they are in good physical condition and have excellent preparation for their university work.

TUITION GRANTS

In order to enable students to attend the university who would be unable to do so without some financial assistance, the trustees award 250 tuition grants annually to residents of New Hampshire who have attended college for less than two semesters. Each tuition grant pays $75 per year and is good for one year only.

Applications for these tuition grants must be returned to the Student Aid committee not later than July 15.

Recommendations for tuition grants may be made by the subordinate and Pomona granges, state senators, State Federation of Women's clubs, university alumni clubs, and citizens of New Hampshire.

Upon investigation and approval tuition grants will be given to those whose need appears to the committee to be the greatest.

Tuition grants will be forfeited at any time for misconduct or for failure to attain a scholastic average of 65 per cent for the first semester. A student placed on probation forfeits his tuition grant during the period of probation.

SCHOLARSHIPS

A limited number of scholarships is awarded annually to deserving students. In order to grant scholarships equitably the university requires full information of all applicants relative to the necessity for scholarship aid. Scholarship application blanks will be provided upon request to the Student Aid committee.

These scholarships will be forfeited at any time for misconduct or failure to maintain a satisfactory scholastic average. A student placed on probation forfeits his scholarship during the semester of probation.

A more detailed description of the several classes of scholarships follows:

Conant Scholarships.—These scholarships provided by the bequest of John Conant, of Jaffrey, pay $75 at present and are good for one

year. By terms of the bequest they are open to men taking agricultural curriculums and preference is given to residents of Cheshire county. Application should be made to the Student Aid committee.

Nancy E. Lougee Memorial Scholarships.—Since 1921 the interest on $5,000 bequeathed by Amos D. Lougee, of Somersworth, has been expended for scholarships of $75 each. They will be assigned each year and will be good for one year only. No applications can be approved without satisfactory evidence that the candidates *would be unable to attend without the aid of the scholarship.* Until July 15 of each year, preference will be given to residents of Strafford county. Application should be made direct to the Student Aid committee.

Valentine Smith Scholarships.—Through the generosity of Hamilton Smith of Durham, the sum of $10,000 has been given to establish the Valentine Smith scholarships.

"The income thus accruing shall be given to the graduates of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission."

These are the most remunerative endowed scholarships that the institution has to offer. They pay $100 a year and are good for four years if reasonable scholarship is maintained.

Competitive examinations for these scholarships will be held at the university during freshman week. Contestants will be examined in English, American history, algebra (through quadratics), plane geometry, and either physics or chemistry.

Requests for examinations should be forwarded to the registrar at least seven days before freshman week and must state the names and addresses of the students, and the examinations desired.

Examinations are not restricted to residents of the state.

Class Memorial Scholarships.—In accordance with a communication presented to the board of trustees by the Alumni association in 1922, each class upon graduation may establish a fund of $3,000, the interest of which will be used in payment of a class scholarship, to be awarded by a committee appointed by the president. The respective classes may forward recommendations to this committee which will investigate such recommendations before awarding the scholarships.

Scholarships shall be limited to candidates of the highest moral standards, physically sound, and preference shall be given to those who require financial aid in order to continue their education, and shall be dependent upon the same standards as govern the holding of other scholarships.

Eighteen classes are expected to establish these scholarships, and each scholarship shall be dedicated to the name of one of the eighteen New Hampshire men who died in the service of his country during the World War. Nine classes have established their scholarships to date.

They are: Forrest Eugene Adams Scholarship, Class of 1922; Paul

Edward Corriveau Scholarship, Class of 1923; Pitt Sawyer Willand Scholarship, Class of 1924; George Downes Parnell Scholarship, Class of 1925; Cyril Thomas Hunt Scholarship, Class of 1926; Donald Whitney Libbey Scholarship, Class of 1927 and the Libbey family; Frank Booma Scholarship, Class of 1928; Earle Roger Montgomery Scholarship, Class of 1929; Fred Weare Stone Scholarship, Class of 1930.

Ralph D. Hetzel Interscholastic Debating Scholarships.—The Board of Trustees on December 20, 1926, set aside three scholarships each year (each for three years) to be awarded to the three interscholastic debaters who may qualify under regulations defined by the Interscholastic Debating league or by the university. These scholarships are limited to residents of New Hampshire.

Hunt Scholarship.—A special scholarship paying $75 has been established by the trustees at the request of the United States War department for the benefit of soldiers, or sons and daughters of soldiers, in the United States army. This scholarship is named in honor of Colonel William E. Hunt, '99, and Colonel Charles A. Hunt, '01, who have rendered conspicuous and gallant service as officers of the regular army before, during, and since the World War. This scholarship will be granted each year and will be good for one year only. Application should be made direct to the Student Aid committee. The application cannot be approved without satisfactory evidence that the candidate *would be unable to attend without the aid of scholarship.* Preference will be given to a New Hampshire soldier.

Concord Alumni Scholarship Fund.—The Concord Branch of Alumni of the University of New Hampshire has established a scholarship fund. In accordance with the suggestion of the Concord branch, money paid in from year to year is employed as a part of the student loan fund of the university. Ultimately, the principal and such interest as accrues will be transferred to a special scholarship fund.

Frank B. Clark Fund.—A trust fund of $10,000 has been provided by Frank B. Clark of Dover, N. H., the income of which is to be used for the purpose of assisting and encouraging needy and worthy students who are suffering from physical impairment or deformity.

"Students impaired by the loss of an arm shall receive prior consideration.

"The benefits of this gift are to be available to students in any secondary school or college except a secondary school or college which is under the direction or control of a church or religious affiliations or preferences, and with the further understanding that students at the University of New Hampshire shall be given prior consideration."

Dads'-Hetzel Scholarship Fund.—At the second annual Dads' Day at the university, the fathers present voted to establish a scholarship fund to be known as the Dads'-Hetzel fund and subscribed $304. For the present this money will be employed as a part of the student loan fund

of the university. Ultimately the principal and such interest as accrues will be transferred to a special scholarship fund.

Edmund L. Brigham Scholarships.—The income of a trust fund of $4,812 provided by the will of Edmund L. Brigham, a member of the class of 1876, is divided into two scholarships of equal sums each to be known as the Edmund L. Brigham scholarship. They will be awarded at the end of each year to the two members of the freshman class who under the pressure or necessity of having to earn a portion of their college expenses show either a constant improvement in scholarship, or a high scholastic average, or both.

New Hampshire Branch of National Civic Federation Scholarship.—From the income of a fund of $1,100, established in June, 1930 and supplemented in October, 1937, by the New Hampshire Branch of the National Civic Federation, a scholarship is to be awarded annually to the junior woman majoring in economics or business who, at the end of her junior year, by excellence of scholarship, character and promise of leadership, is judged to be most worthy. The dean of the College of Liberal Arts and the two ranking members of the department of economics shall name the winner of this scholarship in each year.

S. Morris Locke Memorial Scholarship.—The income of a fund of $3,000 established by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, shall be known as the S. Morris Locke Memorial scholarship. This scholarship is to be awarded each year to the highest ranking junior majoring in chemistry, entomology, or in any work where the microscope or microscopic technique is largely employed, who has demonstrated outstanding qualities of application, industry and initiative in any of these fields of work.

Cogswell Scholarships.—Through the generosity of the trustees of the Cogswell Benevolent Trust of Manchester there will be available to members of the class of 1943, during their senior year, 20 scholarships of $200 each and 10 of $100 each. These scholarships will be given to members of the class whose general record of scholarship, attainments and conduct during the freshman, sophomore, and junior years are adjudged by a committee of the faculty to be most worthy. The committee will scrutinize closely the record of the junior year, and will give weight not only to the general excellence of the scholarship record, but to growth and improvement as well.

Hood Scholarships.—Through the generosity of Charles H. Hood, '80, there are available to qualified students in the College of Agriculture whose aims are set definitely to promote farming as a life opportunity four scholarships of $200 each. These scholarships are awarded to students who maintain high standards of scholastic excellence and strong character and, in case of competition, are assigned in preference to students who intend after graduation to take up work relating to farm milk production.

George H. Williams Fund.—The income of the fund of $9,900 bequeathed to the university by the late George H. Williams of Dover, N. H., shall be used to award scholarships to deserving and meritorious students of Dover. This income shall be divided into four annual scholarships of equal value. These scholarships, awarded for one year only and not renewable, will be granted to men and women students, residents of Dover, for either the sophomore or junior year. Eligibility shall depend upon character, meritorious scholarship, self-help and evidence of financial need. Application should be made to the Student Aid committee.

The Ordway Fund.—Through the bequest of Martha H. Ordway, of Hampstead, made in 1934, the income from $2,000 will be expended each year for the benefit of indigent students from Sandown or Hampstead, if any; otherwise for the benefit of other indigent students attending the university. Application should be made to the Student Aid committee.

Charles H. Sanders Fund.—The income from a bequest of $3,000 from the estate of Charles H. Sanders, class of 1871, provides a scholarship in memory of the first class to be graduated from the university in 1871, consisting of William P. Ballard of Concord, Lewis Perkins of Hampton, and Charles H. Sanders of Penacook. This scholarship will be awarded to a needy member of the junior class who has excelled in scholarship or has shown marked improvement in his scholastic achievement during his first two years at the university. Application should be made to the Student Aid committee.

John N. Haines Scholarship.—The income from a fund of $2,475 bequeathed by John N. Haines of Somersworth will be used to provide a scholarship for a deserving student of the university. Preference will be given to a student whose home is in Somersworth. Applications should be directed to the Student Aid committee.

Harvey L. Boutwell Scholarship.—The income of a bequest of $3,000 of the late Harvey L. Boutwell of Malden, Mass., class of 1882, and member of the board of trustees from 1911 to 1929, provides a scholarship for a deserving student who would otherwise find it difficult to obtain a higher education. It will be awarded annually to a Massachusetts student, preference to be given to a resident of Malden, Mass. The determination of the award will be based on character, scholarship, self-help and evidence of financial need. Application should be made to the Student Aid committee prior to July 15.

Currier-Fisher Scholarship Fund of New Hampshire's Daughters.—The income of a gift of $3,500 in 1938, supplemented by an additional $210.50 in 1940, from New Hampshire's Daughters, is to be used for educational purposes by New Hampshire girls attending the university. Application should be made to the Student Aid committee not later than July 15.

STUDENT LOAN FUND

Sears, Roebuck Scholarships.—Through the generosity of Sears, Roebuck and Company, and in appreciation of the business received from the rural areas, several scholarships of approximately $100 each have been awarded annually since 1940 to bona fide farm boys who have given evidence of scholastic ability and who also need financial assistance to remain in college during the sophomore year. Application should be made to the Dean of the College of Agriculture.

Georg Engelhardt Scholarships.—Two scholarships will be awarded annually during the years 1941 through 1944 to the highest ranking man and woman in the sophomore class. The recipient of the scholarships will be chosen by a committee of the faculty on the basis of need, scholarship, participation in extracurricular activities, leadership, and service as evidenced during the first two years of college. These scholarships were established in 1940 by President Fred Engelhardt in memory of his father, Georg John Engelhardt, and are valued at $150 each.

STUDENT LOAN FUND

In order to assist needy students to continue their education, the university has established a student loan fund. After proper investigation and approval by parents, loans may be granted to responsible students for tuition or other college expenses, except that freshmen holding tuition grants may borrow in addition not in excess of $25. These loans will bear interest at 2 per cent until graduation or withdrawal from the university, and 5 per cent after graduation or withdrawal and are payable as follows: $5 a month beginning one year after graduation or withdrawal; $10 a month beginning two years after graduation or withdrawal; $15 a month beginning three years after graduation or withdrawal; and a like sum each month thereafter until principal and interest are paid.

The John H. Pearson Trust.—In coöperation with the trustees of the John H. Pearson Estate, Concord, N. H., a student loan fund known as the John H. Pearson trust has been established, and is administered under the conditions governing the student loan funds of the university.

James B. Erskine Loan Fund.—In 1930 a bequest of Dr. James B. Erskine, of Tilton, provided a fund of $3,642 for loans to students; loans to bear interest at the rate of 5 per cent until paid. This fund will be reserved for members of the senior class.

S. Morris Locke Loan Fund.—Through a bequest of the late Mary D. Carbee of Haverhill, N. H., a fund has been created for loan purposes in memory of Mr. and Mrs. S. Morris Locke. The fund now totals approximately $21,000.

R. C. Bradley Loan Fund.—The New Hampshire Poultry Growers association has established a loan fund for assistance to undergraduates who have been in attendance at the university at least two years,

with preference given to seniors. Loans are open only to students majoring in poultry husbandry in the College of Agriculture and are based on character, scholarship, and need of financial assistance. Applications made to the Committee on Student Aid are approved by that committee with the advice of a committee selected by the directors of the Poultry Growers association.

Charlotte A. Thompson Loan Fund.—In 1940, a bequest of $500 provided a fund for loans to students. Miss Thompson was librarian at the Durham Public Library from 1895 to 1907 and was a member of the university library staff from 1907 until her retirement in 1929.

OTHER ASSISTANCE

Luella Pettee Fund.—During the year 1939–40 as a memorial to Mrs. Charles H. Pettee, her many friends subscribed to a fund of $1,812.50, the income of which is to be used, upon approval of the dean of women, to assist directly by small gifts worthy women undergraduates in need of financial assistance.

Frederick Smyth Book Fund.—The income of a bequest of $2,000 in 1901 by Frederick Smyth, of Manchester, is applied to the purchase of books to be given annually to the most meritorious students.

PRIZES *

Bailey Prize.—To endow the prize formerly offered by C. H. Bailey, '79, and E. A. Bailey, '85, a fund is being created by winners of the prize, the income of which will continue the prize for proficiency in chemistry.

The Katherine DeMeritt Memorial Prize.—Mrs. John T. Croghan (Margaret DeMeritt, class of 1911) is the donor of a prize of $25 in memory of her sister, Katherine DeMeritt, of the class of 1908, continuing an award made by their mother, the late Dean Elizabeth P. DeMeritt. It is awarded to that junior girl who, during her three years in college, has shown the greatest aptitude for helpful leadership and cheerful loyalty combined with strength of character and scholastic attainments.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has invested $100 as a memorial to her son, a member of the class of 1893, the income of which is to be given to that senior who is most distinguished for consistent progress and achievement.

Interscholastic Debating Prize.—The University of New Hampshire Debating league was reorganized in 1921, and is under the direction of the instructor in debating and public speaking in the university. Any secondary school of the state is eligible for membership. Preliminary

* In order to be announced at the Senior Convocation names of recipients of prizes and awards must be in the hands of the commencement committee on or before April 15.

contests are conducted at the schools, and a final contest is held at the university to determine the winner of the league. A prize cup is awarded in rotation to the winners. Other prizes, such as medals and certificates, are awarded to individual debaters from time to time.

Interscholastic Prize Speaking Contest.—This contest, for students of any accredited high school of the state (provided they have not already won the first prize in a previous year), was first held in May, 1912. Three prizes are provided by the university for the winners.

University Inter-Fraternity Scholarship Trophy for Men.—Through the generosity of Wilfred A. Osgood, '14, who has donated trophies for similar purposes in the past, a plaque has been given, and is to be awarded each year to that fraternity whose members have the highest scholastic standing as certified by the registrar.

Dietrich Cup.—This cup was given by the class of 1916 in memory of Rosina Martha Dietrich, a member of that class, who died a few weeks before graduation. The cup is to be awarded each year to the girl who attains the highest scholarship in her junior year. The cup is to remain in her possession throughout her senior year and until the next winner is named.

The American Legion Award.—The New Hampshire Department of the American Legion, as a mark of recognition of the university's contribution in the World War and as an expression of its interest in national defense, offers yearly a medal to that man in the senior class who has attained the highest distinction determined by achievement in military science, athletics, and scholarship. The name of the winner will be inscribed on a trophy. This trophy, made possible by the generosity of the American Legion of this state, is to remain in the permanent possession of the university.

Chi Omega Prize.—Mu Alpha Chapter of Chi Omega awards an annual prize of ten dollars to the undergraduate woman student at the university who excels in the work of the department of sociology.

Class of 1899 Prize.—The Class of 1899 has given to the university a fund of $500, the income to be used as a cash prize to be awarded "by the faculty to the senior who in their opinion has developed the highest ideals of good citizenship."

Phi Sigma Prize.—In order to promote research in the biological sciences the local chapter of the Phi Sigma national honor fraternity offers a prize of $10 to be awarded annually to that senior who offers most promise in research in biology. The prize has been offered each year since 1921.

Phi Sigma Medal.—In order to promote high scholarship in biological sciences, the Phi Sigma national honor fraternity offers a medal to be awarded annually to that senior who ranks highest in biological courses throughout the entire four years of collegiate work. The amount of

work carried in biology together with the average grade in all other courses shall be considered in making this award. It shall in no case be awarded to the recipient of the Phi Sigma prize. The medal was offered for the first time in 1938.

Hood Prizes.—Through the kindly interest and generosity of Charles H. Hood of the class of 1880, the income of funds given to the university in 1921 and in 1924 will be used for the encouragement, aid, and benefit of deserving students.

In accordance with the suggestion of the donor, for the present the income will be expended as follows:

First. *Hood Achievement Prize.*—A suitable medal will be awarded annually to that member of the senior class whom the members of the three upper classes choose as giving the greatest promise of becoming a worthy factor in the outside world through his character, scholarship, physical qualifications, personal popularity, leadership and usefulness as a man among men.

Second. *Hood Dairy Prizes.*—A part of the Hood income will be devoted each year to paying a portion of the expenses of the members of a team or teams chosen for excellence in judging dairy cattle and sent to participate in intercollegiate or other dairy contests. Suitable medals will also be provided for the individual members of such teams.

Third. *Hood Supplementary Bequest.*—The income from this bequest will be used for the purchase of a suitably inscribed trophy to become the property of the university. The names of the winners of prizes in dairy cattle judging are to be inscribed annually upon this trophy, which will thus serve as a permanent record to the institution of their skill and accomplishment.

Mask and Dagger Fund.—The income from a gift of $4,900 from Mask and Dagger Society in 1940 will perpetuate the annual prizes offered by the society for the following purposes:

Mask and Dagger Achievement Prizes of $25 each awarded each year to the three seniors who, during their college courses, have made the most outstanding artistic contributions to the dramatic work of the university.

Fairchild Memorial Prizes, of $25 each, in memory of Edward T. Fairchild, a former president of the university, awarded to the three seniors who have done the most to promote dramatics during their four years at the university.

Thomas J. Davis Prize.—By a gift of Thomas J. Davis, Duluth, Minn., a native and former resident of Durham, a fund has been provided for the establishment of dairy science prizes for competitive judging of dairy cattle by "short course students," excluding all four-year students, and allowing a suitable handicap in favor of students who are taking a course of not more than four months.

Locke Prize.—The income of a trust fund of $3,000 bequeathed by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, will be awarded at the end of each year to that junior majoring in Latin, who is adjudged by a committee of the faculty to have excelled in the study of that language. In awarding the prize the committee shall give weight not only to the average grade in Latin, but also to the general record of scholarship, other attainments and character.

Psi Lambda Cup.—Psi Lambda, the home economics club, each year awards a cup to the home economics senior who has shown the greatest improvement in personality and scholarship during her four years in college.

Association of Women Students Award.—The Association of Women Students will award annually $25 to the woman student who has proved to be of value to the women's student body, and who has shown by scholarship, self-help, leadership, and loyalty that she is worthy of this award.

Alpha Zeta Scholarship Cup.—A cup is awarded annually by the Granite chapter of the fraternity of Alpha Zeta to the sophomore in the College of Agriculture who has made the highest scholastic average during his first three semesters' work. The winner will have his name engraved on the cup which will be on display in the trophy room.

General Chemistry Award.—The local chapter of Alpha Chi Sigma, professional chemistry society, engraves each year on a trophy placed in Charles James hall, the name of the freshman who secures the highest average grade in chemistry.

Phi Lambda Phi Award.—Phi Lambda Phi, physics honor society, will award annually a prize of $10 to a senior who is most deserving, as revealed by proficiency in physics and general scholarship.

The Wellman Trophy.—The Wellman trophy, given by James A. Wellman, of Manchester, a trustee of the university since 1928, to stimulate and promote interest in debating and public speaking, will be awarded annually at the end of his junior year to that student who has shown excellence and continued improvement in debating. The element of improvement will be of first importance in judging the winner. The name of the winner will be engraved on the trophy which will be on display in the Trophy room.

The Pan-Hellenic Scholarship Trophy.—A cup has been given to the University by the University of New Hampshire chapter of Pan-Hellenic to be awarded each year to the sorority whose members have maintained the highest scholastic standing during the preceding two semesters. This trophy, first awarded in 1933, remains in the possession of the sorority throughout the year and until the next winner is named.

The Mortar Board Scholarship Plaque.—The New Hampshire chapter of Mortar Board presented to the University in 1941 a scholarship

plaque on which will be engraved each year the name of the woman student of the freshman class of the preceding year who attained the highest academic average.

The Student Writer Prize.—The editorial board of The Student Writer offers a prize of $10 annually, first given in 1941, for the best contribution to the current issue of The Student Writer.

Alpha Xi Delta Plate.—A plate will be awarded annually by the Alpha Xi Delta sorority to the senior girl who proves herself to be the best athlete in her class. The plate will be awarded on consideration of the following qualifications: good sportsmanship, physical fitness, athletic achievements, and superior skill. The cup will be awarded by a board of judges including the members of the department of physical education for women, the president of the Association of Women Students and the president of the Women's Athletic Association.

STUDENT ORGANIZATIONS

STUDENT GOVERNMENT

THE STUDENT COUNCIL is an organization of men students which serves as a liaison body between the university administration and the students, and as a representative group seeking to promote the best interests of the university. Members of the council are elected by ballot each spring.

THE ASSOCIATION OF WOMEN STUDENTS promotes responsibility in maintaining high standards of personal conduct and encourages active coöperation in self-government. All women students are members of the association.

THE STUDENT CONGRESS is a coördinating body for the activities of the student organizations other than the academic honorary, professional and departmental societies. The membership comprises the presidents of all organizations represented.

THE STUDENT DEFENSE COMMITTEE is an organization for coördinating and fostering student defense activities.

ASSOCIATED STUDENT ORGANIZATIONS provides a central administration of business affairs. A committee of six, appointed by the university president, advises member groups in matters of budgeting and expenditure of monies resulting from the student activity tax, and makes recommendations to the president relative to the administration of the tax.

THE INTERFRATERNITY COUNCIL, composed of fraternity representatives regulates campus interfraternity relations.

THE INDEPENDENT MEN'S COUNCIL is an organization for coördinating the activities of the independent men students.

PAN HELLENIC coördinates interfraternity women's activities and regulates the rushing period.

THE ADVISORY COMMITTEE ON ATHLETIC AWARDS, consisting of three undergraduates and three faculty members, acts on all recommendations for the awarding of men's athletic insignia, selects managers of varsity and freshmen sports and cheerleaders, approves and ratifies athletic records made by university athletes in intercollegiate competition, and serves in an advisory capacity to the senate committee on athletics.

THE WOMEN'S ATHLETIC ASSOCIATION includes all registered women students and provides opportunity for participation in extracurricular sports. The organization owns a cabin at Mendum's pond for outings and sponsors campus social events.

ACADEMIC HONORARY, PROFESSIONAL AND DEPARTMENTAL SOCIETIES

Phi Kappa Phi, national honorary, highest ranking seniors selected from all colleges.

Alpha Chi Sigma, professional, chemistry.

Alpha Kappa Delta, national honorary, sociology.

Alpha Sigma, architecture.

Alpha Zeta, national honorary, agriculture.

The University Band is composed of members of the university regiment and selected students.

The University Choir, advanced choral group.

Branch of the American Society of Civil Engineers (see course description).

The Classical Club, Latin and Greek.

The Economics Club, business, economics and secretarial students.

Branch of the American Institute of Electrical Engineers (see course description).

Engineers Club.

Forestry Club.

The French Club.

Gamma Kappa, geology.

The Glee Club has two organizations, one for men and one for women. Membership is open to undergraduates interested in choral singing who fulfill try-out requirements. The club presents several public programs a year.

The Graduate Science Society, graduate students and faculty members engaged in research in the sciences.

The Horticulture Club for students interested in horticulture.

The International Relations Club is one of over 450 chapters throughout the world assisted by the Carnegie Endowment for International Peace.

Kappa Delta Pi, honorary, education.

Student Landlords, hotel administration students.

Mask and Dagger is a dramatic society which makes a practical study of the drama and presents three plays each year in conjunction with English 5. Its membership includes students who have participated in plays or assisted in stage production.

STUDENT ORGANIZATIONS

Physical Education Club, an organization for men students majoring in the Physical Education Teacher Training curriculum.

Pi Gamma Mu, National, Honorary Social Science.

Branch of the American Society of Mechanical Engineers (see course description).

Minnesaenger, German.

Phi Lambda Phi, honorary, physics.

Phi Sigma, national honorary, biology.

Plant Science Club, faculty members and graduate assistants.

Poultry Club.

Psi Lambda, honorary, home economics.

The Psychology Club.

Scabbard and Blade (Company F, Sixth Regiment), national honorary, military.

Secretarial Club, students registered in the secretarial curriculum.

Sociology Club.

Tau Kappa Alpha, national honorary, debate and oratory.

SOCIAL HONORARY SOCIETIES

The Blue Key, senior men leaders.

Mortar Board, senior women leaders.

Senior Skulls, senior men leaders.

STUDENT PUBLICATIONS

The Granite is an illustrated annual published by the junior class.

The New Hampshire, semi-weekly newspaper, presents campus and alumni news and is published by a student editorial board.

The New Hampshire Student Writer, a collection of the best undergraduate prose and verse of the year, is published annually under the supervision of the department of English.

RELIGIOUS ORGANIZATIONS

The Hillel Club is an organization to bring to Jewish students a more adequate knowledge of their heritage, to make Jewish religious and cultural values vital and relevant for the college generation, and to foster friendship, coöperation, and understanding among the various religious groups on this campus.

The Newman Club, a club of Catholic Culture and Fellowship, fosters the spiritual, intellectual and social interests of Catholic students. It is

a member of the Newman Club Federation. Activities include corporate communions, discussion study groups, lectures, dramatics, parties, dances, etc. A Reading Room is provided in New Hampshire Hall.

The Student Christian Movement is a fellowship of students united in the desire to understand the Christian faith and live the Christian life in realistic awareness of the needs of the day. The cabinet plans and carries out a varied program of activities to further this purpose, including vesper services, Freshman Camp, Bible study groups, student-faculty open house, and Sunday Evening Fellowship. It is a member of the World Student Christian Federation. The Service of Holy Communion is celebrated monthly in the Chapel at New Hampshire Hall.

INTEREST GROUPS

The Barnacles, students and faculty of the marine laboratory on the Isles of Shoals.

The Chess Club.

The Flying Club fosters interest in flying powered and motorless aircraft as a sport. The club maintains a Waco primary glider.

Folio, a society composed of students interested in the reading and discussion of contemporary literature.

The Lens and Shutter Club, organized for group study and enjoyment of photography.

Menorah Society is the local chapter of the Intercollegiate Menorah association for the study and advancement of Jewish culture and ideals.

Mike and Dial, composed of students interested in various phases of radio work—announcing, writing, and technical work.

The New Hampshire Club, composed of men who have earned varsity athletic letters.

The Outing Club sponsors out-of-doors activities, especially mountain climbing and skiing, and conducts the annual winter carnival and the university horse show. The club owns cabins in Franconia Notch, at Jackson, and at Mendum's pond, nine miles from Durham. Throughout the school year weekly climbing or skiing trips are conducted. Membership is open to all students, faculty members and alumni.

The Poetry Workshop, a group of students interested in the study and writing of poetry.

Press Club, a group of students interested in journalism.

The Sphinx Society, a service organization designed to promote good will between the university and visiting athletic teams. The society entertains visiting teams and aids their managers and coaches. Membership is limited to one member of the junior class from each fraternity and one from Cauldrons.

THE UNIVERSITY 4-H CLUB, students who have engaged in boys' and girls' club extension work.

THE YACHT CLUB, open to students, faculty and alumni, furthers the sport of intercollegiate racing, and provides sailing facilities for members. The club owns a fleet of Town Class Junior sloops which are anchored on Great Bay, three miles from Durham.

SOCIAL ORGANIZATIONS, FRATERNITIES AND SORORITIES

THE ASSOCIATION OF WOMEN DAY STUDENTS furthers the interests of commuting women in the cultural and social activities of the university.

THE MEN COMMUTERS' CLUB promotes the social activities of commuting men.

STUDENT COÖPERATIVE CLUB is a social group organized to provide board and room for its members on a coöperative basis.

DORMITORY AND CLASS ORGANIZATIONS. Each of these groups is organized to promote its social activities.

THE OMVILA CLUB, an organization of women students living off campus whose purpose is to provide group social life and representation in student activities.

FRATERNITIES.*—Kappa Sigma, (1894) 1901; Sigma Alpha Epsilon, (1894) 1917; Theta Chi, (1903) 1910; Lambda Chi Alpha, (1906) 1918; Alpha Tau Omega, (1907) 1917; Phi Mu Delta, (1914) 1918; Pi Kappa Alpha, (1921) 1929; Sigma Beta, (1921); Phi Alpha, (1922) 1924; Theta Kappa Phi, (1922) 1923; Alpha Gamma Rho, 1924; Phi Delta Upsilon, (1924); Tau Kappa Epsilon, (1926) 1932.

SORORITIES.*—Chi Omega, (1897) 1915; Alpha Chi Omega, (1913) 1924; Alpha Xi Delta, (1913) 1914; Phi Mu, (1916) 1919; Kappa Delta, (1919) 1929; Theta Upsilon, (1926) 1930; Pi Lambda Sigma, 1929.

* The dates listed indicate (1) the date (in parentheses) of founding as local fraternity, and (2) the date of granting a charter to the national fraternities.

FOUR-YEAR CURRICULUMS

COLLEGE OF AGRICULTURE

M. Gale Eastman, *Dean*

DEPARTMENTS

Agricultural and Biological Chemistry
Agricultural Economics
Agronomy and Agricultural Engineering
Animal Husbandry
Dairy Husbandry
Entomology
Forestry
Horticulture
Poultry Husbandry

Requirements for Degrees

Each candidate for a degree must complete 144 semester credits and the courses prescribed in one of the major four-year curriculums.

Students graduating from the four-year curriculum in animal husbandry, dairy husbandry, teacher preparation or general agriculture must present to the dean of the College of Agriculture, at least two weeks prior to commencement, satisfactory evidence of having had practical experience in farm work, either through having lived on a farm for at least two years subsequent to the age of 12, or through having worked on a farm at least six months subsequent to the age of 16.

Students graduating from the forestry curriculum must have spent at least three months in practical forest work, in addition to attendance at an eight weeks' summer camp under supervision of the forestry department.

Students graduating from the horticulture curriculum or the poultry curriculum must have had practical experience on the college farm and elsewhere to satisfy the heads of the major departments concerned.

Teacher preparation seniors must take one semester of supervised teaching in some high school in the state designated by the state department of education.

Several fields of study in the arts are open to students in the College of Agriculture without prerequisites. The attention of students is directed especially to the cultural offerings in architecture, home economics, horticulture, music, physics, and pottery. Interested students are urged to consult Mr. George R. Thomas of the department of architecture to learn more about these courses.

Curriculums

The object of the four-year curriculums of this college is to give a broad general education and thorough training in the basic sciences as well as to develop specific technical knowledge relating to the various phases of agriculture. To this end several subjects in the Colleges of Liberal Arts

and Technology have been added to those provided by the College of Agriculture. The lecture and recitation work of the classroom in agriculture is amply supplemented in all cases by practical exercises in the laboratories and about the farm. Seminars and discussion courses also are provided for seniors or other advanced students.

Many of the graduates of the four-year curriculum return to the farm for the purpose of putting into practice the knowledge and training gained in their college courses, and many of them have become successful and prosperous citizens of their communities; others, who have no farms of their own, accept salaried positions as superintendents or foremen on large dairy, fruit, stock, or poultry farms; still others take positions as teachers of science and agriculture in our secondary schools, or as assistants in our agricultural colleges, experiment stations or extension services; and, finally, an increasingly large number continue in specialized work, here or elsewhere, toward graduate degrees.

The major curriculums from which the agricultural student may make his final selections follow. (Supplementing these, the College of Agriculture will be pleased to arrange a course of study to meet the needs of the "pre-theological major." Students looking toward possible training for the rural ministry should confer with the dean to learn of the proposed coöperation between our agricultural college and the theological seminaries.)

1. General agriculture
2. Agricultural and biological chemistry
3. Animal husbandry
4. Dairy husbandry
5. Entomology
6. Forestry
7. Horticulture
8. Poultry husbandry
9. Teacher preparation

During the freshman and sophomore years, all agricultural students pursue practically the same general outline of fundamental work. Some little variation is allowed in one or two curriculums which will become apparent as one confers with his adviser and makes out his schedule of studies. The wide variety of introductory background courses offered here is intended to give the student an insight into the various departmental offerings in agriculture. The purpose of this arrangement is twofold: (1) To acquaint the student with all phases of agriculture, even though his interests up to the time of entering college may have developed along only one line; (2) To make possible a change in the student's curriculum or field of specialization as late as the end of his sophomore year, should such an interest or opportunity become apparent to him. There are extremely practical, as well as cultural, values to be sought in such a wide range of agricultural training which may lead to unexpected opportunities in almost any position of trust and responsibility and contribute no less to greater resourcefulness in seeking desirable positions. To meet such objectives definitely and objectively without undue diffusion of effort or prolonged study in fields presumably lacking in primary interest, a variety of half-semester concentrated courses is required of each student.

The versatility thus provided is not intended as an invitation to the student to vacillate or procrastinate. An early decision in regard to the curriculum to be completed is highly desirable and is urgently recommended. Supplementary courses then serve to enrich the main objective. If, however, these first two years of work in college should enlarge one's horizon and clarify one's perspective sufficiently to enable him to make a more thoughtful and conscientious appraisal of his aspirations and opportunities, a change in curriculums can be made, even then, without serious penalty.

The general descriptions of curriculums which follow should be carefully studied.

General Agriculture.—This curriculum is offered for the student who wishes to secure a broad, general training in many important branches of agriculture without specializing unduly in any particular department. Some courses are required in the Technology and Liberal Arts colleges, and the student is encouraged to elect others. In addition to the broad general background of course work which will have been completed by the end of the sophomore year, obviously other advanced and supplementary courses will be required in the junior and senior years. However, a considerably greater choice of subject matter is allowed here than in the more specialized curriculums.

Students who expect to engage in farming will find this so-called general curriculum with its wide range of fundamental courses a most profitable one. This curriculum also prepares for extension work like that of a county agent, a boys' and girls' club leader, a marketing or farm management investigator, or a soils and crops specialist. For those expecting to specialize later in graduate work, the broad foundation of fundamental subject matter made possible by this curriculum should provide a most desirable background.

Students interested in preparing themselves for entrance into a veterinary college will register as regular students in general agriculture. A special schedule to meet the individual's needs may be permitted. Consultation with the professor of veterinary science is required before completing registration.

Agricultural and Biological Chemistry.—Students majoring in this curriculum receive training in the various branches of general chemistry and in their application to the growth and development of plants and animals. The methods used in the chemical analysis of plants and agricultural products and in the study of animal nutrition and metabolism are given especial attention. The curriculum is designed to provide a thorough foundation for those expecting to prepare themselves for teaching and research in colleges and experiment stations. A student wishing to major in this department should register as a freshman in general agriculture, and take chemistry 3 and 4; also mathematics 5 and 6 if his high school preparation is adequate.

As this is a professional and specialized field, entrance to it at the beginning of the sophomore year, and continuance in it, are conditioned on

a satisfactory record. An early conference with the head of the department is imperative.

ANIMAL HUSBANDRY.—This curriculum is offered to students who wish a specialized training in the practical and intelligent management, selection, breeding, and feeding of livestock, including horses, beef and dual-purpose cattle, sheep, and swine. Special attention is given to studies which will prepare students for various lines of work, including the extension service, production and sales work with feed concerns and packing plants, and the management of estates and general livestock farms.

Many have found this curriculum excellent preparation for advanced work in veterinary science, civil service, and other specialized lines.

During the junior and senior years each student is advised to elect as many courses in dairy production as possible, thus obtaining fundamental information about a closely related type of enterprise.

Various anatomical models, charts, and lantern slides, and an up-to-date livestock library are available for student use.

Herd books of the most prominent breeds are used for the purpose of familiarizing students with the methods of tracing pedigrees and with the practices of breeders' associations.

DAIRY HUSBANDRY.—Students majoring in dairy husbandry are offered specialized courses in (1) dairy production and (2) dairy products or dairy manufactures. Dairy production courses include a study of the dairy breeds and all phases of care, feeding, management, herd analysis, judging, and selection of dairy cattle. Dairy products courses include a study of market milk, tests of dairy products including the use of the Mojonnier milk tester, dairy bacteriology, and the manufacture of butter, cheese, and ice cream. The dairy herd on the campus, together with the daily-operating market milk pasteurizing and ice cream units in the dairy building, contribute to the practical training of students in any one of several lines of the dairy industry.

The dairy husbandry laboratories, located in the dairy building and in the dairy barn, are well equipped for instructional purposes. The equipment includes power churn, power separator, pasteurizers, coolers, ice cream freezers, bottler, two mechanical refrigeration units, a homogenizer, and a soaker type bottle washer. The milk testing and bacteriological laboratories have equipment necessary for milk testing and inspection, and dairy bacteriology.

ENTOMOLOGY.—The department of entomology offers various courses and selections of courses for students who wish to major in entomology, and especially for students who desire to secure training through which they can later take up one or another aspect of entomology as a profession.

There are several aspects into which entomology naturally divides itself. Each of these represents a definite field of specialization, and an opportunity for professional work according to the training that the

student has had. Equipment for a professional position is based on suitable undergraduate work to be followed by more fully specialized graduate work.

Outlines of specific, suggested courses of study are available to the student on application at the department office. These outlines refer to the following specialized fields of entomological training, any one of which is offered by the department to students majoring in entomology.

General Entomology.—A broad selection of courses which furnish a suitable background for later specialization in the following: (a) life history studies of insects; (b) control of animal parasites; (c) systematic entomology; and (d) the relation of insects to their environment. Students who are interested in entomology in general, but have not yet determined what special field they might wish to enter, may take this grouping of courses.

Toxicology.—This specialized field relates particularly to the control of insects by chemical means. It is a professional field that is rapidly developing. A student who elects it will be given extensive training in chemistry as well as in entomology, and in graduate work will be expected to give considerable attention to insect physiology.

Medical Entomology.—The undergraduate training looking toward specialization in medical entomology includes courses in zoölogy and human physiology, as well as studies in the life histories of important insects that serve as the transmitting agents for various human diseases and in the means of control of such diseases through control of the insects that transmit them.

Forest Entomology.—This aspect of entomology is closely related to the study of forest practices. Students who specialize in this field will take certain courses in forestry as well as fundamental entomology and specialized studies in the life histories of insects attacking forest and shade trees.

Biologic Control.—Certain fundamentals of general entomology are taken up in the subjects studied by a student majoring in this aspect of entomology. In addition, special attention is given to the relation of various natural enemies to insects, including insect parasites and the effects of fungous and bacterial diseases upon insect life and abundance.

FORESTRY.—The training and instructional work in forestry is intended to meet the needs of three classes of students: (1) those who wish to secure four years' training in forestry; (2) those who wish to fit themselves for positions in the lumber business; and (3) those who desire a foundation for professional or graduate work in forestry. All students take the same forestry work during the first two years, and their courses of study as juniors and seniors depend on their records as freshmen and sophomores.

General Group.—This group includes those students who wish to secure a sound training in forestry, but who do not care to spend more than four years in college. Considerable latitude is given in the courses which the

student may elect, but his efforts are directed toward securing a good general education.

Business Group.—The student who chooses this program of study receives training in the fundamental principles of forestry, and, in addition, elects certain courses in the field of business administration.

Professional Group.—This program of study is designed to fit the student for advanced work at some other institution, where he will be able to satisfy the requirements for the degree of master of forestry in one year. Students who plan to enter the United States forest service, to become teachers, research workers, or consulting foresters, should elect this course. The requirements, however, are high for this group, and only the best students will be encouraged to undertake it.

HORTICULTURE.—The department of horticulture offers instruction which, by thorough preparation in fundamentals, fits the student for intelligent and resourceful production and marketing of fruits, vegetables, and flowers. Students of superior ability will find it possible, by supplementing their undergraduate work with postgraduate study, to prepare for professional positions in teaching, research, or extension work.

The course in ornamental horticulture and floriculture is designed to fit the student for work on large private estates, in retail florists' ranges, or with nursery companies. It does not presume to prepare professional landscape architects.

Major students in this department must elect a minimum of 25 semester credits of advanced horticultural and related courses. In addition, because fundamental to all horticultural work, the study of economics, of plant physiology, and of the control of insects and diseases is required of all students. Similarly, subject matter in other departments related to the student's chosen field of endeavor may be required at the discretion of the head of the department.

Mathematics 5 and 6 is to be preferred in the freshman year for students who expect to do graduate work. At all times electives should be carefully selected with the help of the adviser to strengthen the foundation for later special work in the chosen field.

POULTRY HUSBANDRY.—The curriculum in poultry husbandry has been designed to offer students fundamental and special training in the practical as well as professional fields of poultry. The courses are also offered to those majoring in other departments.

A brief but comprehensive period of practical work is offered for those who lack sufficient experience in the actual care and production of chicks and laying birds. All of the facilities of the university poultry plant are available for such students.

TEACHER PREPARATION.—Under the provisions of the Smith-Hughes act, the University of New Hampshire has been designated as the institution in this state for the preparation of teachers of agriculture. For further information, see description under University Teacher Preparation Curriculums, pages 152 and 158.

Early contact with the adviser is urged.

Freshman Year

All Curriculums

	First Semester Credits	*Second Semester Credits*
Convocation		
Mil. Sci. 1, 2	1½	1½
Phys. Ed. 31, 32	½	½
Bot. 1, Zoöl. 48 (*Biology*)	4	3
Chem. 1, 2 or 3, 4 (*General*)	4	4
*Eng. 1, 2 (*Elementary Written and Oral*)	3–0	3–0
Math. 5, 6 (*First Year*) or Math. 21, 22 (*Elements of Analysis*)	3–5	3–5
†A. H. 1, Agr. Econ. 5; Agron. 2, Ent. 6	4	4
	17–22	16–21

Sophomore Year

All Curriculums

	First Semester Credits	*Second Semester Credits*
Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
‡Agr. Chem. 1 (*Introductory*) *and* 2 or 4 (*Plant; Animal*) or Chem. 25, 26 (*Quantitative and Qualitative*)	5–3	3
Econ. 1, 2 (*Principles*)	3	3
Phys. 4 (*Elements*)		4
†Hort. 1, Agr. Eng. 5; Agron. 4, D.H. 6	4	4
†For. 1, P.H. 5	4	
Elective	0–2	2
	18	18

* There will be six credits given for this course at the end of the senior year. Students excused from the exercises of the course should not reckon these credits in making up a program of study.

† Half-semester courses. (Of the ten offered during the freshman and sophomore years, at least eight must be completed by all students except those in agricultural chemistry and forestry.)

‡ Agricultural chemistry 2 is required of students majoring in forestry or horticulture.

Agricultural chemistry 4 is required of students majoring in animal husbandry, dairy husbandry, or poultry husbandry.

Note.—Forestry freshmen must take forestry 25, 26 (*Tree and Wood Identification*), agronomy 2 (*Soils*), and entomology 6 (*Principles*). Forestry sophomores must take forestry 29, 30 (*Silviculture*) and civil engineering 7 (*Surveying*).

Freshmen planning to major in agricultural and biological chemistry are required to take chemistry 3 and 4, and mathematics to include algebra, trigonometry and analytic geometry. They must consult the department head before completing registration.

Freshmen planning to major in entomology must consult with the head of that department before completing registration.

Pre-veterinary students must consult the professor of veterinary science before completing registration.

In the College of Agriculture, courses once elected become required unless dropped without penalty. If failed, they must be repeated or otherwise arranged for by petition.

COLLEGE OF AGRICULTURE

GENERAL AGRICULTURE

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Agr. Econ. 11 (*Agricultural*)	3	
Agr. Econ. 13 (*Farm Records*)	2	
Agron. 13, 14 (*Crop Production*)	3	3
A.H. 13 (*Feeds*)	3	
Bact. 1, 2 (*General; Applied*)	4	4
Elective	3	11
	18	18
Prescribed or Recommended Electives		
Agron. 15 (*Soil Utilization*)	3	
A.H. 11, 14 (*Judging*)	1	1
D.H. 27, 30 (*Butter and Cheese; Bacteriology*)	2	4
D.H. 33, 34 (*Judging*)	1	1
Ent. 51 (*Orchard; Garden*)	2	
P.H. 53, 54 (*Problems*)	Arr.	Arr.
Zoöl. 49 (*Genetics*)	2	

Senior Year

Convocation		
Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	13	12
	18	18
Prescribed or Recommended Electives		
Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
A.H. 19, 20 (*Horses; Beef Cattle; Sheep and Swine*)	3	3
D.H. 23, 64 (*Cattle; Milk Production*)	3	3
D.H. 65, 66 (*Market Milk; Ice Cream*)	3	3
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Soc. 57 (*Rural Sociology*)	3	
Others from junior list		

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Bact. 1, 2 (*General; Applied*)	4	4
Chem. 47, 48 (*Organic*)	5	5
Lang. (*French or German*)	3	3
Elective	6	6
	18	18
Prescribed or Recommended Electives		
Agron. 13, 14 (*Crop Production*)	3	3
A.H. 13 (*Feeds*)	3	
Geol. 1, 2 (*Principles*)	4	4
Hort. 1 or 14 (*General; Vegetable Gardening*)	3	3
Math. 7, 8 (*Calculus*)	3	3

Senior Year

Convocation		
Agr. Chem. 51, 52 (*Physiological*)	5	5
Agr. Chem. 53, 54 (*Agricultural Analysis*)	4	4
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	7	6
	18	18
Prescribed or Recommended Electives		
Bot. 4 (*Physiology*)		4
Chem. 55, 56 (*Theoretical Problems*)	3	3
Chem. 83, 84 (*Elementary Physical*)	5	5
Zoöl. 59, 60 (*Physiology*)	4	4

COLLEGE OF AGRICULTURE

ANIMAL HUSBANDRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Agron. 13, 14 (*Crop Production*)	3	3
A.H. 11, 14 (*Judging*)	1	1
A.H. 13 (*Feeds*)	3	
A.H. 15, 16 (*Veterinary Science*)	3	3
A.H. 18 (*Meat and Its Products*)		2
Bact. 1 (*General*)	4	
Zoöl. 49 (*Genetics*)	2	
Elective	2	9
	18	18

Prescribed or Recommended Electives

Agr. Econ. 11 (*Agricultural*)	3	
Agr. Econ. 13 (*Farm Records*)	2	
Agron. 15 (*Soil Utilization*)	3	
A.H. 22 (*Advanced Judging*)		1
Bact. 2 (*Applied*)		4
D.H. 33, 34 (*Judging*)	1	1
Econ. 24 (*Marketing*)		3

Senior Year

Convocation		
Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
A.H. 19, 20 (*Horses, Beef; Sheep, Swine*)	3	3
A.H. 51, 52 (*Breeding; Seminar*)	3	Arr.
D.H. 23, 64 (*Dairy Cattle; Milk Production*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	4	6
	18	18

Prescribed or Recommended Electives

Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Others from junior list		

DAIRY HUSBANDRY

Junior Year

	First Semester Credits	Second Semester Credits
Convocation		3
Agron. 13, 14 (*Crop Production*)	3	
Bact. 1 (*General*)	4	
D.H. 27, 30 (*Butter, Cheese; Bacteriology*)	2	4
D.H. 33, 34 (*Judging*)	1	1
Elective	8	10
	18	18
Prescribed or Recommended Electives		
Acct. 1, 2 (*Elementary*)	4	4
Agr. Econ. 13 (*Farm Records*)	2	
A.H. 15, 16 (*Veterinary Science*)	3	3
Bact. 2 (*Applied*)		4
Zoöl. 49 (*Genetics*)	2	

Senior Year

Convocation		3
Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	
A.H. 13 (*Feeds*)	3	3
D.H. 23, 64 (*Cattle, Milk Production*)		2
D.H. 60 (*Seminar*)		2
D.H. 62 (*Advanced Dairy Science*)	3	3
D.H. 65, 66 (*Market Milk; Ice Cream*)	2	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	4	2
Elective	18	18
Prescribed or Recommended Electives		
Agr. Econ. 11 (*Agricultural*)	3	
Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Others from junior list		

ENTOMOLOGY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Bact. 1, 2 (*General; Applied*)	4	4
Ent. 57, 58 (*Advanced*)	4	4
Elective	10	10
	18	18
Prescribed or Recommended Electives		
Bot. 51, 54 (*Pathology; Advanced*)	3	Arr.
Chem. 25, 26 (*Quantitative and Qualitative*)	3	3
Chem. 53-54 (*Organic*)	5	5
Chem. 82 (*Physical*)		2
Ent. 54 (*Household*)		2
Ent. 56 (*Forest*)		2
For. 27-28 (*Mensuration*) or For. 29-30 (*Silviculture*)	3	3
Lang. (*French or German*)	3	3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3	3

Senior Year

Convocation		
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Ent. 59, 60 (*Advanced*)	2–5	2–5
Lang. (*French or German*)	3	3
Elective	8–11	7–10
	18	18
Prescribed or Recommended Electives		
Agr. Chem. 51-52 (*Physiological*)	5	5
Bot. 3, 4 (*Anatomy and Cytology; Physiology*)	2	4
Chem. 83-84 (*Elementary Physical*)	5	5
Zoöl. 53-54 (*Histology and Development*)	4	4

FORESTRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Bot. 4 (*Physiology*)		4
Bot. 51 (*Pathology*)	3	
For. 27, 28 (*Mensuration*)	3	3
Elective	12	11
	18	18

Prescribed or Recommended Electives

Ag. Econ. 11 (*Agricultural*)	3	
Ag. Econ. 13 (*Farm Records*)	2	
Agron. 15 (*Soil Utilization*)	3	
Bot. 3, 6 (*Anatomy and Cytology; Systematic*)	2	2
C.E. 8 (*Surveying*)		2
Ent. 56 (*Forest*)		2
For. 31, 32 (*Utilization*)	3	3
For. 33, 34 (*Protection; Fish and Game*)	3	3
Lang. (*French or German*)	3	3
M.E. (S5) (*Wood Shop*) / M.E. (S12) (*Forge Shop*)		3
Zoöl. 71, 72 (*Taxonomy*)	3 or 4	3 or 4

Summer Camp

For. 42 (*Timber Survey*) 6 or 8 weeks		8 or 10
Elective		
For. 41 (*Fish and Game Management*) 2 or 8 weeks		2 or 10
For. 53 (*Wildlife Research Problems*) 8 weeks		10

Senior Year

Convocation		
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
For. 39, 40 (*Management*)	4	4
Elective	9	8
	15	15

Prescribed or Recommended Electives

Ag. Econ. 15 (*Marketing and Coöperation*)	3	
For. 35, 36 (*Thesis*)	2 or 3	2 or 3
For. 37 (*Recreation*)	3	
For. 52 (*History*)		3
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Zoöl. 95, 96 (*Limnology; Conservation Problems*)	4	4
Others from junior list		

HORTICULTURE

Junior Year

	First Semester Credits	Second Semester Credits
Convocation		
Bact. 1 (*General*)	4	
Bot. 51, 4 (*Pathology; Physiology*)	3	4
Hort. 44 (*Practice*)		5
Hort. 94 (*Plant Breeding*)		2
Zoöl. 49 (*Genetics*)	2	
Elective	9	7
	18	18
Prescribed or Recommended Electives		
Ag. Econ. 13 (*Farm Records*)	2	
Agron. 13 (*Crop Production*)	3	
Ent. 51 (*Orchard; Garden*)	2	
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Hort. 13 (*Judging in Horticulture*)	2	
Hort. 14 (*Elementary Vegetable Gardening*)		3
Hort. 27, 26 (*Ornamentals*)	3	3
Hort. 38 (*Floral Arrangement*)		1
Hort. 48 (*Beekeeping*)		2
Hort. 53 (*Orchard Fruits*)	3	
Hort. 54 (*Small Fruits*)		2
P.H. 18 (*Incubation*)		3

Senior Year

Convocation		
Ag. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Hort. 91, 92 (*Seminar*)	1	1
Elective	12	11
	18	18
Prescribed or Recommended Electives		
Ag. Econ. 11 (*Agricultural*)	3	
Ag. Eng. 13 (*Electricity*)	3	
Bot. 6 (*Systematic*)		2
Eng. 10 (*News Writing*)		3
Hort. 39 (*Greenhouse Management*)	3	
Hort. 49 (*Beekeeping*)	2	
Hort. 61 (*Harvesting and Marketing*)	3	
Hort. 65 (*Commercial Vegetable Production*)	3	
Others from junior list		

POULTRY HUSBANDRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Agr. Econ. 13 (*Farm Records*)	2	
P.H. 17, 16 (*Judging; Breeding*)	3	2
P.H. 23, 24 (*Management; Practice*)	3	4
Zoöl. 49 (*Genetics*)	2	
Elective	8	12
	18	18

Prescribed or Recommended Electives

Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
Agron. 13, 14 (*Crop Production*)	3	3
Agron. 15 (*Soil Utilization*)	3	
A.H. 13 (*Feeds*)	3	
Bact. 1, 2 (*General; Applied*)	4	4

Senior Year

Convocation		
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
P.H. 19, 18 (*Marketing; Incubation*)	2	3
P.H. 25, 20 (*Diseases; Feeding*)	4	3
P.H. 27, 28 (*Seminar*)	1	1
Elective	9	8
	18	18

Prescribed or Recommended Electives

Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
D.H. 64 (*Milk Production*)		3
Geol. 5, 6 (*Weather; Climates of World*)	2	2
P.H. 22 (*Housing*)		2
P.H. 53, 54 (*Problems*)	Arr.	Arr.
Others from junior list		

COLLEGE OF LIBERAL ARTS

*Edward Y. Blewett, *Dean*
Harold H. Scudder, *Acting Dean*

DEPARTMENTS

Biology
Economics and Accounting
Education
English
Geology
Government
History
Home Economics
Hotel Administration
Languages
Music
Physical Education for Women
Sociology

Purpose and Objectives

The College of Liberal Arts, comprising thirteen departments of instruction, offers in a variety of programs of study a broad general education encompassing the principal areas of human thought and achievement except those concerned specifically with agriculture and engineering. Many of its programs of study are specialized and are organized in such manner as to give, in addition to general knowledge, vocational training of high quality.

The development of common interests and the coördination of educational efforts in behalf of students in the college are promoted by divisional groups, as follows: humanities, social sciences, physical sciences, biological sciences, education, home and institutional management. The personnel of each divisional group includes all faculty members assigned to departments of the college, and to departments of other colleges which are authorized to offer major programs or prescribed curriculums approved by the faculty of the College of Liberal Arts and the University Senate.

The Humanities divisional group is composed of the staffs of the departments of English, languages, music, and the department of architecture in the College of Technology. The Social Science divisional group is composed of the staffs of the departments of economics and accounting, history, government, and sociology. The Physical Science divisional group is composed of the staffs of the department of geology, and the departments of chemistry, mathematics and physics in the College of Technology. The Biological Science divisional group is composed of the staffs of the department of biology, and the department of entomology in the College of Agriculture. The Education divisional group is composed of the staffs of the departments of education, physical education for women, and the department of physical education for men. The Home and Institutional Management divisional group is

* On leave, 1941-42, U. S. Army.

composed of the staffs of the departments of home economics, and hotel administration.

The several general and special requirements for degrees in the College of Liberal Arts are intended to secure for the individual student the following objectives: reasonable correctness and facility in the written and oral use of English; acquaintance with the arts and the major social, economic, governmental, literary and philosophical problems of the present day, with some understanding of their historical backgrounds; broad acquaintance with the findings of science in its larger fields and some practical knowledge of the scientific method; introduction to certain areas of activity and appreciation the better to develop occupations for leisure; an enthusiasm for books; the beginning of a philosophy of life and a willingness to accept one's share of responsibility; mastery of a selected field of knowledge and considered selection or confirmation of a selection of a vocation.

The offerings of the College of Liberal Arts are divided into two groups: the General Liberal Arts curriculum and the Prescribed curriculums. The university Teacher Preparation curriculums are described on pages 152–156.

The General Liberal Arts Curriculum

The General Liberal Arts curriculum is intended primarily to give opportunity for a broad, liberal program, a general education leading to the A.B. or B.S. degree.

The degree of bachelor of science is conferred upon all students who have majored successfully in the General Liberal Arts curriculum in one of the following: bacteriology, biology, botany, chemistry, economics, and accounting, education, entomology, geology, home economics, mathematics, physical education for women, physics, sociology, zoölogy. The degree of bachelor of arts is conferred upon all students who have majored successfully in the General Liberal Arts curriculum in one of the following: art, English, French, German, government, history, history and literature, Latin, music, psychology in the department of education, Spanish.

By means of a system of general requirements and group electives, each student registered in the curriculum is given a general education upon which to build the program of his major interest. The requirements for degrees in the General Liberal Arts curriculum are described on pages 128–131. Some major programs may have vocational aspects though they are not necessarily expected to be so specialized. Other major programs merely furnish opportunities for the students to explore more thoroughly an area of human thought or endeavor which may have intrigued them during the period of general education. The General Liberal Arts curriculum must not be confused with the prescribed curriculums. The latter are fundamentally vocational in nature.

The objectives, opportunities and requirements of majors in the General Liberal Arts curriculum are described in the paragraphs which follow. It is possible, also, for students in the General Liberal Arts

curriculum to arrange programs of study in addition to those described below, although such students will be held strictly to the university and college requirements of the curriculum. Students interested in arranging special programs of study should consult the dean of the college.

Major Programs

Art

The courses in art are directed toward developing the intelligent enjoyment and critical understanding of art, providing opportunities for creative expression, and directing the student in clear and orderly thinking.

Students interested in broadening their cultural backgrounds through the study of one of the major fields of human endeavor and acquiring a sustaining interest which may continue through life are advised to consider registration as majors in art. Students who intend to enter upon graduate study in art should plan to major in this field as undergraduates.

Likewise, students registering as majors in areas in which a knowledge of art values is desirable—business (advertising, merchandising), education, hotel work, etc., are advised to consider one or several courses offered in art.

Demonstrated talent for creative work is not a necessary prerequisite to a major program in art. Several types of programs emphasizing varying interests may be arranged for individual students: for those who plan to teach art in the secondary schools, those interested in art and industry, those with special abilities, and those who, through graduate study, are planning for a professional career in art.

To those students who plan to consider teaching art in the secondary schools, it should be pointed out that very few positions are available in any year for the teaching of this subject alone. Therefore, a student should consider a program of study which may qualify him for the teaching of art and other subjects, and should consult Professor G. R. Thomas of the department of architecture and Professor A. M. Stowe of the department of education.

Students majoring in art are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 128–131. They are expected also to complete successfully architecture 47, 48, *Introduction to the Arts*, and other courses offered in art to a total of 24 semester credits, each course with a grade of 75 or better. Courses in dramatics, literature, music and in the social sciences will be approved as related work for a major in art. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference.

Students interested in majoring in art are advised to consult with the supervisor, Professor G. R. Thomas, in his office in room 304, DeMeritt hall.

Bacteriology

Students interested in the study of microörganisms are advised to consider registration as majors in bacteriology. Students who intend

to enter upon graduate study in this field should plan to major in bacteriology as undergraduates.

Students who major in bacteriology may prepare themselves for positions in state, city, or private hospitals or in experiment station, public health, commercial or industrial laboratories. Since advancement in such employment is usually dependent upon advanced study, students are counselled to plan on formal training or study after college. Advanced degrees are also necessary for preferred employment in university teaching and research and for positions with commercial, industrial, or public service organizations.

Students who major in bacteriology are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 128–131. They are expected also to complete with grades of 75 or better courses offered by the department and by related departments to a total of 24 semester credits. Chemistry 53, 54, *Organic Chemistry*, or agricultural chemistry 5, *Organic and Biological Chemistry*, are also required for bacteriology majors but cannot be counted as part of these 24 major credits. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference. Since majors in bacteriology receive a thorough basic training in other biological sciences and in chemistry, they have considerable opportunity to select the field of work they are particularly interested in after graduation.

Students interested in majoring in bacteriology are advised to consult with the supervisor, Professor L. W. Slanetz, in his office in room 215, Nesmith hall.

Biology

Students interested in a broad training in the various life sciences are advised to major in biology. Such students will find it possible to use courses in bacteriology, botany, entomology, and zoölogy in building up a program that will fulfill their particular requirements. The field, however, is so inclusive that the majority of students will find it desirable to carry a large part of their work in one of the subdivisions such as bacteriology, botany or zoölogy. In addition to those students who desire biology for its cultural background, it is suggested that students interested in *biological laboratory technique*, *fish and game management*, *applied biology*, and *secondary school teaching* register as biology majors.

Secondary School Teaching.—Students planning to teach biology in secondary school are strongly urged to plan for cadet teaching during their senior year and if possible in preparation for this, to register for *education-biology* 93, which will consist of assisting in the laboratory classes in general biology. Since few positions are available in any year for the teaching of biology alone, a student should consider a program of study which may qualify him for the teaching of other sciences also.

Applied Biology (Fish and Game Management, etc.).—Students preparing for positions, the work of which involves the application of the

science of biology, such as those frequently listed by the federal civil service and by the state governments, should concentrate in the field of applied biology. The department is especially fitted for the preparation for work in fish and game management. Students preparing for professions in this group should plan to secure advanced degrees since positions in these fields are difficult to secure without post-graduate training.

Biological Laboratory Technique.—In consequence of the increasing number of intricate and lengthy procedures in the biological laboratory, the independent investigator or physician is unable to accomplish much without trained assistants. Those assistants who become specialists in certain phases of laboratory work are known as technicians. The successful technician is not a mere robot or skilled laborer but must be a person with the background and training which enables him to assume responsibility for accurate analysis. Some of the most famous scientists began their careers as technicians.

After completing his basic training in biology and chemistry, the student may find employment in many fields. The technician in a clinic or hospital may make routine urine analyses, blood and bacteriological tests and prepare sections of tissues. The private physician may employ a technician for both laboratory and office work. Nurses with training in laboratory technique are assured of excellent positions. Biological laboratories and supply houses employ technicians to make slides and other preparations for schools and museums. Many, with a year or two of experience, obtain positions in federal, state, or city public health laboratories. The government is taking more and more interest in public health and recently large sums of money were set aside for work in this field. Scientists in government positions, universities, colleges, and private foundations have technicians prepare slides and carry on many routine experiments. In smaller institutions and in experiment stations a technician may have other duties such as teaching and maintaining a dispensary. In museums they prepare slides, models, skins, and plant and animal habitat groups. Large drug companies hire technicians to test the effect of chemicals and drugs on animals. One with a mechanical training can be valuable in making and perfecting new scientific instruments.

The program which a student should follow who plans to become a laboratory technician would depend upon his objective—whether preparing to become a laboratory technician in a hospital, or a public health clinic, a doctor's assistant and secretary, or a technician in connection with some of the private industries.

Students interested in medical laboratory technique are strongly advised to plan to become clinical pathologists. These are highly trained technicians who have passed a course accepted as adequate by the American Medical association. This involves an exacting training including zoölogy 57, 58, *Laboratory Technique;* zoölogy 53, *Histology;* zoölogy 54, *Embryology;* chemistry 25, 26, *Quantitative and Qualitative*

Analysis; organic chemistry; and physiological chemistry; physics 1, 2; bacteriology 1, 2, *General and Applied Bacteriology;* and advanced bacteriology. Following graduation an additional year's work is necessary in an approved hospital school. Pathologists with such training are rapidly replacing the ordinary laboratory technician.

Students interested in becoming medical secretaries or doctors' assistants should follow a program similar to that of laboratory technicians and in addition should have two years of typewriting and shorthand.

Students who major in biology are expected to meet in full the requirements of the General Liberal Arts curriculum including the completion, with a grade of 75 or better, of 24 semester credits of work in biology (exclusive of biology 1, 2). Students interested in majoring in biology are advised to consult with the supervisor, Professor C. F. Jackson, room 101, Nesmith hall.

Botany

Students interested in plant life are advised to consider registration as majors in botany. Students majoring in botany who desire to go into federal or state government services, government or private research or college teaching should prepare to undertake graduate study. Positions in state and federal work in plant disease study, crop production, and related economic fields are available. There are also positions open to graduates of the College of Liberal Arts in business and professional areas where some knowledge of botany is required. Botany has long been recognized as a basic course in the College of Agriculture, but few people have realized the importance of plants in the environment of every individual regardless of his occupation. Food, fabrics, and fuel are largely derived from plants. It is desirable, therefore, that every person get some understanding of the nature of plants.

Students who major in botany are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 128–131. They must also complete with grades of 75 or better courses offered by the department and by related departments to a total of 24 semester credits. These 24 credits may be earned in elective courses, required courses, or in both. The following courses are required of botany majors: botany 3, *Plant Anatomy and Cytology;* botany 4, *Plant Physiology;* botany 51, *Plant Pathology* (botany 5, *Plant Pathology,* may be substituted for 51); botany 6, *Systematic Botany;* chemistry 1-2 or 3-4, *General Chemistry.* Of these all but chemistry 1-2 and 3-4 carry major credit if passed with the required grade of 75 or better. Other courses in botany in addition to those listed, and also agricultural chemistry 1, 2; and zoölogy 49, *Genetics,* are courses which may be elected by students for major credit.

The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference.

Students interested in majoring in botany are advised to consult with

the supervisor, Professor A. R. Hodgdon, in his office in room 218, Nesmith hall.

Chemistry

Students interested in the study of chemistry will find opportunities in different fields such as (1) industrial work involving the development of processes or production activities or sales work based on a scientific knowledge of the marketable product; (2) the teaching of chemistry and allied subjects in secondary schools or of chemistry in colleges; (3) graduate study for those students who are interested and particularly proficient in their undergraduate work.

The university offers two channels for the study of chemistry. In the College of Liberal Arts a major should complete chemistry 3-4, *General Chemistry*, and in addition other courses offered by the department in analytical, organic and physical chemistry to a minimum of 24 semester credits, each course with a grade of 75 or better. According to the students' interests, other supporting subjects may be elected to form a broad program of study and prepare for some one of the opportunities listed above. Majors in chemistry are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 128–131. For those interested in the technical or applied phases of chemistry, a prescribed curriculum in the College of Technology should be followed.

The department is equipped to furnish the training necessary for the teaching of chemistry in the secondary school. Since, however, very few positions are available in any year for the teaching of chemistry alone, a student should consider a program of study which may qualify him for the teaching of chemistry and other sciences, and should consult Professor Iddles in James hall, and Professor A. M. Stowe of the department of education. Students interested in the teaching of chemistry in college are advised to plan on graduate study. Students interested in majoring in chemistry are advised to consult with the supervisor, Professor H. A. Iddles, in his office in room 117, James hall.

Economics

Students interested in the economic and business life of the nation, who do not desire to specialize intensively in the Business curriculum (see page 134), or the Secretarial curriculum (see page 138), are advised to consider registration as majors in economics. Students who intend to enter upon graduate study in economics should plan to major in this field as undergraduates. An increasing number of opportunities in business and the public service are open to young people who possess graduate training in economics.

Business positions in retail stores, chain stores, banks, sales organizations, and general business offices, insurance and other firms, have been successfully filled by graduates of the university who have majored in economics. The Business curriculum, however, provides better preparation for this type of work by reason of the specialized courses which

it includes, and their sequential arrangement. A student who desires breadth in his education, plus a mild emphasis on economics, is counselled to major in the department.

The department is equipped to furnish the training necessary for the teaching of economics in secondary schools. Since, however, very few positions are available in any year for the teaching of economics alone, a student should consider a program of study which may qualify him for the teaching of economics and other social studies, and should consult the supervisor, and Professor A. M. Stowe of the department of education.

Students who major in economics are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 128–131. They are expected also to complete successfully economics 1 and 2, *Principles of Economics*, and other courses offered by the department and by related departments to a total of 24 semester credits, each course with a grade of 75 or better. History, philosophy, and American government will be approved as related work for a major in economics. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty supervisor in personal conference. Thus the student whose interests lie in the field of banking might be counselled to build his major program about economics 53, 54, *Money and Banking*, as a core, including courses offered by the department and other departments to meet his special objective.

Students interested in majoring in economics are advised to consult with the supervisor, Professor H. W. Smith, in his office in room 101, Morrill hall. Professor Smith may assign the student, when the field of his major interest is determined, to another member of the department who is responsible for the area of concentration selected by the student and who will be his supervisor throughout the duration of his course.

Education

Students who are interested in preparing themselves for teaching in the secondary school and who do not desire to follow any of the University Teacher Preparation curriculums (see pp. 152–156) should consult with Professor A. M. Stowe of the department of education in room 118, Murkland hall. Under some circumstances it is possible for such students to prepare themselves for teaching as majors in the subject matter departments in which they desire to teach. In other instances, it may be wise for them to do their work as majors in education.

Majors in education are divided into three groups: *first*, those students who find themselves academically interested in the subject and who intend to continue their study in graduate school. Such are required to complete 24 semester credits in education with a grade of 75 or better.

A *second* group who major in education do so to prepare to teach in secondary schools. They also are required to complete 24 semester credits in education with grades of 75 or better, and not more than 9 credits earned in practice teaching may be counted toward the fulfillment

of this major requirement. These students are also required to complete with an average grade of at least 75 (1) a teaching major of at least 24 semester credits of post-secondary school work in a subject matter department, or in a subject matter field, and (2) either a second teaching major of at least 18 semester credits or two teaching minors of 12 semester credits each.

A *third* group of majors in education are those students who are interested in teaching or in supervising in elementary schools and who are graduates of two- or three-year normal schools or teachers' colleges are required to complete with grades of 75 or better 12 semester credits of work in elementary education selected from the advanced courses in that subject offered in the summer school as a part of the total credits which are required of them as candidates for the degree of bachelor of science. The remainder of their major programs will be selected by such students with the advice and approval of the head of the department of education.

While some of the courses offered in education are designed to be of interest to the general student, only those students who have definitely decided to prepare themselves for the teaching profession should seriously consider majoring in the department of education.

Professor Stowe is the supervisor of all majors in education. Arrangements will be made, however, to enable majors in education to be advised in particular problems by members of the staff best qualified to be of service to them.

English

Students looking forward to a career in writing or journalism, to the teaching of English in secondary schools or in universities and colleges, or those who seek a broad and liberal education with the emphasis upon the study of English and American literature are advised to register as majors in English. For students who plan to pursue graduate work in English (and such work will be very necessary for those who are to teach the subject in colleges and universities), majoring in the field as undergraduates is essential.

In preparation for many varieties of work after college, concentration in the field of English during undergraduate years may prove of great value. Particularly will this be true for those who hope for careers as writers, publishers, journalists, librarians, actors, and radio broadcasters.

In conjunction with the department of education, the department of English is prepared to furnish the training demanded for teachers of English in the secondary schools of New Hampshire and other states. While such students may well major in English, it not infrequently occurs that in the secondary schools the teacher is asked to teach other subjects with English, and therefore all who are seeking to fit themselves for such work should consult the head of the department of education as well as the head of the department of English.

Students who major in English are expected to meet in full the require-

ments of the General Liberal Arts curriculum which are set forth on pages 128–131. They must also earn a grade of 75 or better in 24 semester credits in courses in English. The 24 semester credits with a grade of 75 or better may be earned in elective courses, required courses or in both. The following courses are required for English majors: English 3, 4, *Survey of English Literature;* 11, 12, *Survey of American Literature;* 53, 54, *Shakespeare's Plays;* and 67, *Early English and Chaucer.* Students majoring in English who entered the university prior to September, 1939, are required to register for English 68 as well as English 67. Of these courses all but the first-mentioned (*Survey of English Literature*), which is open to freshmen, carry major credit if passed with the required grade of 75 or better.

English and American history, the survey of Greek and Roman literature, the survey of modern European literature, and linguistics will be approved as related work for a major in English.

Students interested in majoring in English are advised to consult with the supervisor, Professor H. H. Scudder, in his office in room 107, Murkland hall. Professor Scudder may assign the student, when his field of major interest is determined, to another member of the department responsible for that area of concentration selected by the student, such as drama, writing, oral English, or teaching, who will be his supervisor throughout the duration of the course.

The department maintains a writing laboratory for the convenience of all students in the university. Whether enrolled in English courses, or not, the student may bring daily to this laboratory such written work as he may be engaged upon, and may avail himself there of advice and assistance from the department representative.

Entomology

The department of entomology offers various courses for students who wish to concentrate on the study of insects, insect life, and the control of insects. Although the field of employment is limited, there are definite opportunities available to qualified young people. The majority of these opportunities are in the public service, although commercial and industrial firms also employ college graduates who have concentrated in entomology. Graduate study is desirable for the student who seeks high achievement in entomology. A more intensive program in entomology may be secured in the prescribed curriculum offered in the College of Agriculture.

Students who major in entomology are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 128–131. They are expected also to complete successfully courses offered by the department and related departments to a total of 24 semester credits, each course with a grade of 75 or better. Outlines of specific, suggested programs of study are available to the student upon request to Professor J. G. Conklin, supervisor, at his office in room 16, Nesmith hall.

Geology

The field of geology includes the earth sciences. This is not alone the study of minerals, rocks and evidences of prehistoric life. It includes also the history of the earth from its beginning, as well as the evolution of the landscape, and other environmental features which have influenced the development of life on the earth, including man.

Students interested in the earth sciences, both those who expect to make some phase of geology their life work, and those who desire to build a program of liberal studies around a core of geological and related subjects are advised to register as majors in geology.

The search for new sources of essential mineral resources and the development of new uses for certain minerals have emphasized the need for men trained in the earth sciences. Positions as mining geologists, petroleum geologists, mine operators, state survey geologists, university and college professors of geology and mineralogy have been successfully filled by graduates of the university who have majored in geology. Other former major students are teaching in high schools or are in business, some in fields where their geologic training is useful, as in the cement and mining machine industries.

Students who major in geology are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 128–131. They are expected also to complete geology 1 and 2, *Principles of Geology*, and in addition geology courses to a total of 24 semester credits, each course with a grade of 75 or better. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference. Thus the student seeking a broad cultural training built around a core of the earth sciences may be counselled to include geography and meteorology courses in his program. The student who plans to enter the professional field of geology, either directly upon graduation or after further graduate study, will be counselled to build his major program about geology 53, 54, *Economic Geology*, and geology 12, *Structural Geology*, and to include fundamental courses in chemistry, physics, and mathematics.

Students interested in majoring in geology are advised to consult with the supervisor, Professor T. R. Meyers, whose office is in room 205, Conant hall. After a student's major interest is determined, the advice, assistance, and counsel of one or more additional members of the department will be sought where a special area of concentration is contemplated by the student. For example, the student whose special interest lies in geographic or meteorologic fields will be assigned to the staff member responsible for these fields.

Government

By majoring in government a student should obtain a general and cultural background through a study of the political institutions and governments of the United States and of the world. By specializing in one of several programs in government, the major student may prepare

himself for: (1) graduate study in political science and government, (2) teaching civics and the social sciences, (3) public services, (4) businesses closely affected by government, (5) public administration, (6) educational administration, (7) labor administration, (8) foreign service, (9) law, (10) secretarial work in public affairs, (11) research in government, and (12) political journalism.

In addition to the programs mentioned a limited number of internships in public office (see government 11, page 233) have been established, which permit senior students to obtain firsthand knowledge of public service by actually working in an office in the State Capitol for a semester, for which they receive full college credit. Majors in government have also an unusual opportunity for mastering research techniques and information concerning the state and local government of New Hampshire in the Bureau of Government Research. (See pages 63, 231.)

The student who majors in government should meet all the requirements of the General Liberal Arts curriculum found on pages 128–131. Not more than 9 credits earned in government 11 may be counted toward the completion of the major requirements. He should, in addition to his courses in government, elect work in English, economics, history, and sociology which are regarded as closely related fields. Each student will be counselled individually and his program of study built according to his needs.

Students interested in electing government as a major should consult the supervisor, Professor T. V. Kalijarvi, in his office in room 212, Morrill hall. Several of the programs mentioned above involve considerable work in departments other than government. In such cases the student will be advised to consult the person in charge of such work, as for example Professor A. M. Stowe in the case of future teachers of the social studies, and Professor Doris Tyrrell for secretarial work, etc. For convenience the student should first consult Professor Kalijarvi, who will see that the proper members of the faculty are consulted.

History

History, as a field in which to major, may be of interest to the following groups of students: (1) Those who wish to do college teaching in history. Graduate study is indispensable for such work, but preparation may be made for it by a certain amount of undergraduate specialization. (2) Those who plan to teach history in secondary schools. For such a position, training in other social studies is highly desirable if not absolutely necessary. The student is therefore advised to keep in touch with the department of education as well as with the department of history, with a view to satisfying teaching standards and building a well rounded program of studies. (3) Those who intend to enter other professional fields in which a considerable amount of historical knowledge is desirable. Such a field, for example, might be that of library training, in which an historical training would rank with training in literature as a background, or the increasingly important profession of archivist.

(4) Any students who feel free to plan the college program without too specific reference to a vocation, and who have a special interest in history.

Students who major in history are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 128–131. They must also earn a grade of 75 or better in 24 semester credits in courses in history. The 24 semester credits with a grade of 75 or better may be earned in elective courses, required courses, or in both. Any two semester courses, not necessarily consecutive, of the following four, are required for history majors: History 55, 56, *The Philosophy of History*, and 67, 68, *Historical Geography and Biography*.

Any department in the College of Liberal Arts may be considered a related department, except geology, home economics, physical education for men and women, and zoölogy.

Students planning to major in history should consult the supervisor, Professor D. C. Babcock, whose office is in room 210, Morrill hall. As a rule, the student will be assigned to another member of the department who will assist the supervisor in advising him during his college course. His program will be planned and supervised with a view to his individual needs and plans.

History and Literature

Students who desire a broad cultural education may take a combined major in history and literature. Students who plan to enter library service may also find here a desirable major. The program of this major offers an opportunity to study the history and literature together of Greece and Rome, of France, of Germany, or of Spain. A still broader survey of European history and literature is also possible. The program involves the completion of 24 semester credits (12 semester credits in history and 12 semester credits in language courses), with a grade of 75 or better in one of the following groups of courses:

(a) History 11, 12; 13, 14; 55, 56
Latin 7, 8; 51, 52; 55, 56

(b) History 9, 10; 19, 20; 55, 56
Spanish 3, 4; 7, 8; 11, 12

(c) History 15, 16; 17, 18; 19, 20; 55, 56; 61, 62; 63, 64
French 11, 12; 53, 54; 57, 58; 63, 64

(d) History 15, 16; 17, 18; 19, 20; 55, 56; 61, 62; 63, 64
German 11, 12; 53, 54; 57, 58; 63, 64

(e) 6 credits in either Languages 1, 2 (taken in sophomore year) or Languages 51, 52
6 credits in French, German, Latin, or Spanish in courses numbered 7 or higher
12 credits in courses in history in the department of history groups I, II, and V.

A student who has met the major requirements in history and literature will receive the degree of A.B. with the notation "history and literature" on the Commencement program.

Students' registration cards may be signed by either Professor D. C. Babcock, the head of the department of history, or Professor C. S. Parker, the head of the department of languages.

Students electing group (b), (c), or (d) will be expected to do a considerable part of their reading for the courses in history in Spanish, French, or German respectively.

Home Economics

For many years it has been recognized that men who would be doctors, lawyers, ministers and engineers need specialized education. More recently it has been conceded that particular preparation should be given to girls who want to be hospital dietitians, food service directors, teachers of home economics, designers of clothing, extension workers, and followers of other women's vocations. Still more recently we have thought that successful home living, highly satisfactory to others as well as ourselves, needs special preparation also. Family life is so complex today that it is necessary for the homemaker to have a broad general educational background, as well as a knowledge of and the ability to perform, reasonably well, the technical processes ordinarily carried on in the home.

The department of home economics sponsors for the university both kinds of programs—the professional courses which meet the requirements of the professions, and the broad general programs with many electives which give a rich foundation for successful family life and good citizenship. The professional courses really train for both the professional careers and the career of homemaking, for the subject matter and methods of the former are quite applicable to the latter.

Students interested in preparation for homemaking, or in obtaining a broad, general education, particularly applicable to the needs of women, are advised to consider registration as majors in home economics (see pages 128–131). Such a program would not be as completely professional nor would it qualify the student so thoroughly as would one of the professional curriculums. A broad, general program would serve as preprofessional preparation for further training in child guidance, positions in the clothing and textile fields, salesmanship, interior decoration, and other similar lines. Girls wishing to follow such programs should consult with the supervisor, Miss Verna Moulton, in her office in room 212, Pettee hall. Several elective courses are offered for, or are open to, students who do not wish to major in home economics.

While a good many interesting and worthwhile vocations are open to home economics majors, yet there are some fields which demand prescribed curriculums. Special programs are arranged to train hospital dietitians (see p. 135), institution administrators (see p. 137), teachers of home economics (see p. 152), and extension workers (see p. 160).

Majors in home economics are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 128–131. They are expected also to complete successfully courses offered by the department or by related departments to a total of 24

semester hours, each course with a grade of 75 or better. All students majoring in home economics must complete successfully home economics 1, 2, *Homemaking.*

Institutional Management

The student who wishes to work in the field of institutional management (the care and maintenance of any form of household from the individual family dwelling, to the hotel, hospital, sanitarium or other housing of the many) will find in this catalog under the offerings of the departments of home economics, hotel administration, and economics and accounting a variety of courses fitted to his needs. Such students should consult for further information on this subject Professor Helen F. McLaughlin or Associate Professor Raymond R. Starke.

Languages

A major student in the department of languages may have a vocational or cultural objective. Many majors plan to enter secondary school or college teaching. For such students there is no hard and fast curriculum. The arrangement of language courses is sufficiently flexible to meet the individual's needs. As most language teachers are obliged to teach more than one language, or one language in combination with other subjects, students should not plan to concentrate in a single language and its literature but to map out a program including two languages (preferably French and Latin), or one language with a number of courses in English or history. Prospective teachers should consult the head of the department and Professor A. M. Stowe of the department of education. Some departmental majors plan to enter library service. Most library schools require two foreign languages.

Major students who do not plan to teach usually have a cultural objective. Here again the flexibility of the departmental offerings makes it possible to arrange individual programs for individual students. No single course in the department is required of all majors. Some students find a special appeal in a single foreign literature and wish to explore it thoroughly. Others find that the study of two or three languages and literatures is a broadening and stimulating experience.

For non-majors, the department offers practical courses which are a valuable aid to careers in foreign service (consular, diplomatic, commercial, military, or naval), journalism (for international news, foreign books, and the like), interpreting, translating, travel agencies, radio announcing, etc. A knowledge of foreign languages is invaluable for the historian, the architect, the musician, the artist, the political and social scientist, for any citizen interested in foreign affairs. The biologist, chemist or physicist should always be able to read foreign articles and keep up with research in his field in foreign countries. The exchange of goods and information with South America is increasing. As most graduate schools require a knowledge of one or two foreign languages, all students who may possibly do graduate work in any field should obtain a reading knowledge of French and German. The elementary

courses in French, German, and Spanish are planned particularly to help students acquire a reading knowledge of the respective language; at the same time, through reading, the student learns something of the history, institutions, customs, and spirit of a foreign country. The study of Latin improves one's English and gives a firm basis for other language study.

For non-majors there are offered three courses which do not require a knowledge of a foreign language. These courses offer respectively a survey of Greek and Latin literature (in translations), a survey of modern European literatures, and an introduction to the science of linguistics.

Sophomores and juniors may pursue a major in languages; but seniors must designate French, German, Latin, or Spanish as their particular major. Elementary courses French 1, 2, German 1, 2, Greek 1, 2, and Spanish 1, 2 cannot be counted toward the fulfillment of a major. Except for this restriction, a student majoring in one language may count any course taken in another language. Of the 24 semester credits with a grade of 75 or better required for the B.A. degree, not more than 6 may be earned in closely related courses in other departments. For courses which may be accepted as closely related, students should consult the departmental supervisors. The special supervisor for majors in languages and in French is Professor C. S. Parker; for majors in German, Professor J. T. Schoolcraft, Jr.; for majors in Latin, Professor J. S. Walsh; for majors in Spanish, Professor J. Berzunza. All offices of the department of languages are in Murkland hall.

Attention is called to the combined major in history and literature, described on page 119 of this catalog.

Mathematics

A limited number of vocational opportunities are available to students who major in mathematics. Positions requiring a knowledge of statistics are the most numerous in this field. These are found in government agencies, business, life insurance, and in several types of research. Many problems in education, economics, sociology, medicine, genetics and other fields depend upon statistics as a tool of investigation. For an introduction to the field, the department offers mathematics 61, 62, *Introduction to Statistical Methods*. This course requires the prerequisite of one year of college mathematics or its equivalent. Many secretarial workers will find it very useful to be familiar with the fundamental principles of statistics.

The life insurance field offers opportunities to students well trained in the mathematics of finance and insurance. This field also seems to give a good basis for those who wish to do high grade work in accounting.

Students who wish to prepare to teach mathematics in the secondary school or in college may well select a major in the department. Since, however, opportunities to teach only mathematics in high schools are very limited, the student should prepare for the teaching of other subjects as well as mathematics, and should consult Professor H. L. Slobin

and Professor A. M. Stowe of the department of education. Students who wish to prepare for college teaching of mathematics should plan on graduate study.

Professor H. L. Slobin, room 209, Thompson hall, should be consulted by students interested in majoring in mathematics.

Music

The department of music offers a major program in the General Liberal Arts curriculum for students who desire to place a mild emphasis on music while pursuing a broad, general program of study. The study of music history, literature and appreciation gives the student cultural values which should enrich his entire life. Music study tends to increase understanding and appreciation of other fields, including the fine arts, language and literature. A major in music, however, has very limited vocational opportunities.

There is an increasing demand for qualified teachers and supervisors of music education in the public schools. Students interested in this field are counselled to follow the Music Education curriculum (see page 153).

Students who major in music are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 128–131. They must also earn a grade of 75 or better in 24 semester credits in courses in music. The 24 semester credits with a grade of 75 or better may be earned in elective courses, required courses, or in both. The following courses are required of music majors: Music 11, 12, 21, 22, 37, 38, 47, 48. Of these courses all but the first mentioned (11, 12), which is open to freshmen, carry major credit. All students entering upon a major in music after September 1, 1941, are required to complete a minimum of four semester hours of credit in applied music, in addition to a first year of applied music successfully completed at the university or elsewhere.

Prospective majors in music are advised to consult with the supervisor Professor R. W. Manton, in his office in room 301, Ballard hall.

Physics

Physics is perhaps the oldest of the sciences. At the same time advances in physics since 1900 have opened vast new fields and have afforded glimpses of future developments never before imagined. The scientific method, the method of actively pursuing nature by questions put in the form of controlled experiments, has created a new world of experience. Nature has been questioned in high vacuum, at low temperature, under tremendous pressure, at incredible velocities; and by means of million-volt X-rays, and gigantic cyclotrons. The new knowledge in dozens of fields has proved exceedingly useful. The development of modern industry is a lagging but accurate measure of research developments in physical science.

Because of its subject matter and its age the science of physics stands on an exceedingly broad foundation. Hence the basic facts of physics

are also the basic facts of other sciences. The study of physics is necessary for those who intend to devote their lives to some field of science. For those who are not primarily interested in science, the study of physics is perhaps the most effective way to acquire an understanding of the achievements of science, and of the meaning of the words "modern technology." The study of elementary physics is a good introduction to the methods of scientific reasoning and to the use of symbols in exact quantitative work.

Physics offers a fascinating field for concentration in the General Liberal Arts curriculum and affords an excellent general scientific training for positions in applied science such as geophysics (oil prospecting), radio engineering, aeronautics, radiology, design and development of measuring and testing equipment of all kinds. Several opportunities are open to physics majors:

(a) Research positions in industrial concerns. It is not generally known that physicists are employed by vast numbers of companies manufacturing articles as widely different as textiles, rubber, paper, radio equipment, automobiles, aircraft, pianos, and household appliances. A second degree in physics is desirable.

(b) Civil Service. Twice within two years the United States Civil Service commission has issued examinations for physicists. In addition to the usual work for physicists (in National Bureau of Standards, Department of Agriculture, Weather Bureau, etc.), the national defense program has created a demand for more men widely and thoroughly trained in physics.

(c) College and university positions in teaching and research. Such positions are to be attained only after considerable graduate study. Good students can often obtain graduate assistantships in institutions which afford the advantages of financial support, university teaching, and laboratory experience, and the chance to continue with advanced study.

(d) Laboratory technicians. Biological or psychological laboratories operate and maintain electrical apparatus such as amplifiers, oscillographs, autómatic time recorders, signal generators for auditory experiments, potentiometers for retinal potential work, lie detectors, and other equipment.

(e) Secondary school teaching.

The department is prepared to give a thorough training in physics with an eye toward fitting students either to take a place in industry, or to undertake graduate study. Students who wish to major in physics are advised to consult with the supervisor, Mr. Frederick D. Bennett, whose office is in room 111, DeMeritt hall. After a student's major interest is determined, the advice and counsel of one or more additional members of the department will be sought where a special area of concentration is contemplated by the student. For example, students especially interested in secondary school teaching will be assigned to Professor H. I. Leavitt.

Students who major in physics are expected to meet in full the requirements of the General Liberal Arts curriculum which are described on pages 128–131. They are also expected to complete courses offered by the department in addition to physics 1, 2, *Introductory Physics*, up to 24 semester credits with a grade of 75 or better.

Pre-Law

While the bar associations and law schools do not prescribe a specific undergraduate curriculum for future lawyers, they do recommend that a student who contemplates entering law school should plan a study program which will develop breadth of view and facility of expression. They also urge him to acquire a background of information concerning the society in which he lives and the forces which have shaped modern institutions. Above all else, good study habits are stressed.

The courses considered most helpful are those developing oral and written expression; dealing with man's social, economic, and political institutions; providing an understanding of the human mind; and developing the art of thinking. Finally, since the case method of study is used in law schools, courses devoted to the intensive study of the subject-matter are considered helpful as an introduction to the materials and the discipline which the student will experience in law school.

The College of Liberal Arts has placed the supervision and counselling of all students who plan to enter law school after graduation in the hands of a committee. These students are advised to counsel with the chairman, Professor T. V. Kalijarvi, room 212, Morrill hall, as soon as they have made their decision. Other members of the committee include Professor Norman Alexander and Professor S. H. Bingham.

Psychology

Individual courses in psychology are designed to be of service to students who desire to increase their personal efficiency (psychology 11, *Principles of Human Behavior*); to students who may be majoring in commerce or economics (psychology 33, *Commerce;* and 36, *Personnel*); in sociology or social work (psychology 51, *Childhood;* 52, *Mental Hygiene;* and 54, *Psychopathology*); in home economics and education (psychology 51, *Childhood;* and 52, *Mental Hygiene*); or in nursing and in zoölogy in the pre-medical curriculum (psychology 52, *Mental Hygiene;* and 54, *Psychopathology*). Students interested in the subject of psychology and desiring to prepare themselves for graduate work in that subject are advised to consult with Professor A. G. Ekdahl in his office in room 114, Murkland hall, about majoring in psychology and about opportunities open to trained psychologists. Psychology course offerings are described under education on pages 215–217.

In addition to opportunities to teach psychology in colleges and universities, there are some openings for psychometrists or clinical psychologists and test supervisors in psychopathic hospitals, juvenile courts, city school systems and the U. S. civil service. There is also a limited de-

mand for counselors and guidance experts in secondary schools and colleges and for research workers and personnel experts in industry.

Students who major in psychology are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 128–131. They are required to take psychology 71, 72, *Seminar;* and are also expected to complete successfully psychology 31, *General;* and 57–58, *Laboratory*, and other courses offered by the department and related departments to a total of 24 semester credits, each course with a grade of 75 or better. It is desirable that students contemplating a major in psychology should include psychology (31) in the programs of their sophomore year. Other courses may be selected in conference with Professor Ekdahl, who is the supervisor for students majoring in psychology.

Publicity.—The courses in publicity, which the student will find grouped in this catalog on page 279 are those which will assist in mastering the important technique of the dissemination of ideas, as distinct from the mere expression of them. The term publicity has been selected as one out of many available (some others being propaganda, and communications) as a general heading descriptive of the knowledge which goes into the production of the newspaper, the news magazine, the illustrated pictorial, the radio broadcast, and finally the textbook or manual of instruction. Neither advertising nor propaganda is an accurate descriptive, for the first, frankly (and the second by popular misconception) implies self-interest, from which true publicity is free.

Students interested in journalism, photography and other graphic arts, radio broadcasting, advertising, or general publicity of any sort should consider registering as majors in this subject. It should not be neglected by all who in the interests of their professions, or their churches, societies, or other institutional activities may seek the assistance of the press or the radio.

Students majoring in publicity are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on page 128, and in addition an elementary course in a foreign language (French, German, Spanish) other than the language offered to meet the reading test required of all in the General Liberal Arts curriculum, and English 9–10, News Writing. They must also complete courses offered in publicity to a total of 24 semester credits, each course with a grade of 75 or better. The courses of each major program are selected to meet the needs of the individual students, as determined by the student and his faculty adviser in personal conference.

Students interested in majoring in publicity should consult with the supervisor, Professor Harold H. Scudder, in his office in room 107, Murkland Hall.

Sociology

Students who plan to make social work their professional interest are advised to follow the Social Service curriculum (see page 139). Those

wishing to acquire a thorough knowledge of contemporary society, what it is, how it came to be so, the fundamental laws operative within it and the interrelation of the processes, agencies and institutions, its problems, controls and trends should consider registration as majors in sociology. It is well recognized that success in any business or profession in our complex society rests as much upon social awareness and understanding as upon technical knowledge and skill.

Students looking toward a career in law, medicine, the ministry, as well as those desiring a sociopsychological background for commercial, industrial or financial pursuits would do well to supplement their majors by basic courses in sociology.

The department is equipped to provide the necessary training for teachers of sociology in secondary schools. As such teachers usually have to teach related social studies, students should consult Professor C. W. Coulter, head of the department, and Professor A. M. Stowe of the department of education about work supplementary to the major.

Students majoring in sociology are expected to meet in full the requirements of the General Liberal Arts curriculum (see pages 128–131). They are expected to take sociology 1, *Principles of Sociology*, and 2, *Social Psychology*, and, in addition, a minimum of 24 semester credits in the major field, including sociology 75, *Methods of Social Research*, or 84, *Methods of Social Progress*, and at least 6 semester credits of advanced work in one or more of the following correlated subjects: economics, government, history, psychology, home economics, or zoölogy.

Students interested in majoring in sociology are advised to consult the supervisor, Professor Coulter, in his office in room 201, Morrill hall.

Zoölogy

Work in zoölogy is built around the basic principles of human biology. Knowledge in this field is fundamental to knowledge of life itself and is receiving more and more attention throughout the educational world. From the cultural standpoint, therefore, zoölogy holds much of interest for the general student, especially the courses in biology 1, 2, *Man and the Living World*, zoölogy 3, 4, *Hygiene and Sanitation*, and zoölogy 5, 6, *Organic Evolution*. Students interested in some phase of zoölogy as a life work have many fields from which to choose. Most obvious are the fields of medicine (see page 137) and nursing (see page 134). Closely associated with these are many other lines of work for which the student can receive preprofessional training by majoring in zoölogy. These fields include dentistry, laboratory technique, clinical pathology, hospital administration, and public health.

Pre-Dental Training.—Pre-dental training parallels very closely the Pre-medical curriculum (see page 137) and the student's program should include courses in comparative anatomy, physics, and organic chemistry.

Public Health Work.—Many students become interested in public health work through their study of hygiene and sanitation. This is a rather new and growing field which demands special postgraduate train-

ing at recognized schools of public health. Students interested in this field should elect courses leading to the particular line of public health work in which they are interested; for example, training for administrative work would involve economics, sociology, and psychology, in addition to science training; training for work as sanitary inspector would involve courses in the College of Technology such as sanitary engineering. In the higher positions in this field an M.D. degree is necessary in addition to the special training.

Nursing.—For students who are not interested in the Coöperative Hospital curriculum (see page 134), but who plan to enter the nursing field, a valuable, general program can be arranged to include courses in zoölogy and home economics. A student interested in the nursing field and able to pursue graduate work should consider studying at one of the graduate schools of nursing. These schools which admit only college graduates prepare for supervision, administration, and teaching in this field.

Occupational and Physical Therapy.—A second group of subjects not so closely related to medicine or hospital work includes preprofessional training for work in occupational therapy and physiotherapy. In these fields the student's preprofessional training should include several courses in the department of physical education for women as well as special courses in zoölogy. These professions require additional professional training.

Work in zoölogy is correlated with many other branches of work in the university. Students in psychology will find training in human anatomy and physiology and neurology beneficial; those in home economics should find much of value in the work in human anatomy and advanced physiology; students in the field of physical education should be greatly aided by the laboratory work in kinesiology as well as human anatomy, physiology and hygiene and sanitation; and students in the field of sociology should find both hygiene and sanitation and evolution of considerable significance.

All students majoring in zoölogy are expected to meet the requirements of the General Liberal Arts curriculum including the completion, with a grade of 75 or better, of 24 semester credits of work in zoölogy (exclusive of biology 1, 2) or related departments. Election of courses outside zoölogy in fulfillment of major requirements is limited to 8 semester credits. This does not affect, however, the total number of credits which may be elected from related departments. Students interested in any one of the varied programs available in zoölogy are advised to consult with the supervisor, Professor C. F. Jackson, room 101, Nesmith hall.

Requirements for Degrees in the General Liberal Arts Curriculum *

Each candidate for a degree in the General Liberal Arts curriculum must complete successfully 128 semester credits of which 64 must be

* For details see pp. 132, 133.

with a grade of 70 or better and in addition must complete the requirements given below and those of the major field as stated in preceding paragraphs.

A. *General University Requirements*

Convocation	Freshman, sophomore and junior years
Physical education for men	Freshman and sophomore years
Physical education for women	Freshman, sophomore and junior years
Military science	Freshman and sophomore years

B. *Special Freshman Requirements*

The completion of the following special freshman courses:
*English 1
*Introduction to contemporary civilization, history 1 and 2
*A biological science (biology 1-2), or a physical science (chemistry 1-2; †chemistry 3-4; geology 1-2; or physics 1-2)

C. *Special Language and English Requirements*

All students pursuing the General Liberal Arts curriculum are required to pass a reading test in French, German, Latin, or Spanish before graduation. This test will be based on two years of secondary school language training. Graduates of normal schools or teachers' colleges who are pursuing the General Liberal Arts curriculum to qualify for a degree in the field of elementary education, are exempt from the language requirement. Also 12 semester credits of English, including English 1, are required for graduation.

D. *Sophomore Group Requirements*

Students are required to complete one year, elected from each of the following three groups of courses. Not less than one year's work in any given course shall count toward the fulfillment of this requirement.

Group I:
(a) Mathematics
(b) History
(c) English, French, German, Greek, Latin, Spanish

Group II:
‡A biological science (biology 1, 2) or a physical science (chemistry 1, 2; † chemistry 3, 4; geology 1, 2; or physics 1, 2). Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

* Not counted toward fulfillment of major or group requirements.
† Chemistry 3–4 is required for pre-medical students and recommended for all who intend to take advanced work in sciences.
‡ See paragraph 2 on page 127.

Group III:

Economics, education, government, psychology, philosophy, sociology.

E. *Major Requirements*

Each student pursuing the General Liberal Arts curriculum shall select ~~*at the beginning of the sophomore year*~~ a major department in which he must pass courses to a total of 24 semester credits with a grade of 75 or better. Courses ordinarily open to freshmen or taken in the freshman year may not be counted toward the fulfillment of the major requirements. Courses in other departments closely related to the major courses may be counted with the consent of the ~~supervisor~~.

F. *Miscellaneous Regulations and Information Pertaining to All Students in the College of Liberal Arts*

1. Sixteen semester credits constitute a normal semester program. Any student registering for more than 18 semester credits must receive the approval of the faculty committee on excess and reduced hours. A student who petitions for more than 18 semester credits must stand in the upper half of his class as determined by psychological examination at the time of his entrance, and must have a general academic average of 80 or better. These last two requirements may be waived only by unanimous consent of the members of the committee on excess and reduced hours, and the dean. Eligible students who desire to petition for excess hours should consult their advisers as to procedure.

2. Students who are *bona fide* candidates for teaching positions may use physics 15, 16 to fulfill the physical science requirement. Generally, only students preparing to teach English, languages, or the social studies may be permitted to make this substitution. A committee of the faculty passes on requests for substitutions.

3. All freshmen in the College of Liberal Arts are assigned on registration to advisers who counsel them until they have selected major fields or prescribed curriculums. No program of study can be approved by the dean of the college until it has been first approved by the student's adviser.

4. Substitutions for courses required of any student in the College of Liberal Arts must receive the approval of the adviser or supervisor, and the Executive committee of the college, and must conform to the general university and college requirements.

5. Students in both the General Liberal Arts curriculum and prescribed curriculums are advised against over-specialization. Although no attempt is made to limit by regulation the number of courses in a major or the professional courses in a prescribed curriculum, more than thirty-six semester credits in courses in the major subject, or more than sixty-six semester credits in professional courses in a prescribed curriculum are deemed to constitute excessive concentration. Supervisors will counsel students who seem to be concentrating to their detriment to

elect courses more likely to contribute to the breadth of their education. The dean of the college will consult with the supervisors with regard to over-specialization as it may appear in the programs of individual students.

Dept) who should write to the Registrar & Dean of this.

with the exception of certain specified courses listed in the catalog description of the major programs.

GENERAL LIBERAL ARTS CURRICULUM

Freshman Year

All Curriculums

	First Semester Credits	*Second Semester Credits*
Convocation		
Freshman Assembly (*Required as scheduled*)		
Mil. Sci. 1, 2	1½	1½
Phys. Ed. 31, 32 (*For men*)	½	½
Phys. Ed. 1, 2 (*For women*)	2	2
*Eng. 1 (*Elementary Written and Oral English*)		
Hist. 1, 2 (*Introduction to Contemporary Civilization*)	4	4
†A biological science (*Biol. 1, 2*) or a physical science (*Chem. 1, 2; ★Chem. 3, 4; Geol. 1, 2; or Phys. 1, 2*)	4	4
Electives:		
Arch. 2 (*Elements of Architecture*)		2
Arch. 4 (*Significance of Architecture*)		2
Arch. 37, 38 (*Freehand Drawing*)	2	2
Biol. 1, 2 (*Man and the Living World*)	4	4
Chem. 1, 2 (*General Chemistry*)	4	4
Chem. 3, 4 (*General Chemistry*)	4	4
Eng. 3, 4 (*Survey of English Literature*)	3	3
Eng. 43, (43), 44, (44) (*Reading for Thought*)	3	3
Geol. 1, 2 (*Principles of Geology*)	4	4
Geol. 3 (*Geography of the World*)	3	
Geol. 4 (*Geography of North America*)		3
Geol. 5 (*The Weather*)	2	
Geol. 6 (*Climates of the World*)		2
Govt. 1, 2 (*Citizenship*)	3	3
H.Ec. 1, 2 (*Homemaking*)	3	3
Hort. 38 (*Floral Arrangement*)		2
‡Lang. (*French, German, Latin or Spanish*)	3	3
§Math. 1, 2 (*Algebra, Trigonometry*)	~~3~~	~~3~~
Math. 5, 6 (*First Year Mathematics*)	5	5
Music 11, 12 (*Elements of Music*)	3	3
Music 13, 14 (*The Appreciation of Music*)	2	2
Phys. 1, 2 (*Introductory Physics*)	4	4
Psych. (11) (*Principles of Human Behavior*)		3
Soc. 1, 2 (*Principles of Sociology; Social Psychology*)	3	3
	16	16

* There will be six credits given for this course at the end of the senior year. Students excused from the exercises of this course should not reckon these credits in making up a program of study.

† Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

‡ All students pursuing the General Liberal Arts curriculum are required to pass a reading test in French, German, Latin or Spanish before graduation. This test will be based on two years of secondary school language training. Graduates of normal schools or teachers' colleges who are pursuing the General Liberal Arts curriculum to qualify for a degree in the field of elementary education, are exempt from the language requirement. Students not passing this test during the Freshman Week examinations are advised to elect language their freshman year. Students will be assigned to language courses on the basis of their grades in the language placement examination given during Freshman Week.

§ Open only to students with one year each of algebra and plane geometry.

★ Chemistry 3, 4 is required of pre-medical students and recommended for all who intend to take advanced work in sciences.

Sophomore Year

	First Semester Credits	Second Semester Credits
Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34 (*For men*)	½	½
Phys. Ed. 3, 4 (*For women*)	1	1
*Eng.	3	3
Elect one year's work from each of the three following groups:		
Group I. Math. (*One year*)	3	3
Hist. (*One year*)	3	3
Lang. (*French, German, Greek, Latin, Spanish*) (*One year*)	3	3
Eng. (*A third year of English*)	3	3
Group II. †A biological science (*Biol. 1, 2*) or a physical science (*Chem. 1, 2;* ★*Chem. 3, 4; Geol. 1, 2; or Phys. 1, 2*)	4	4
Group III. Econ. (*One year*)	3	3
Educ. (*One year*)	3	3
Govt. (*One year*)	3	3
Phil. (*One year*)	3	3
Psych. (*One year*)	3	3
Soc. (*One year*)	3	3
Electives to meet semester requirements		
	16	16

Junior Year

Convocation		
Phys. Ed. 5, 6 (*For women*)	1	1
Major course (*First major course with grade of 75 or better*)	3	3
Major course (*Second major course with grade of 75 or better*)	3	3
Electives to meet semester requirements		
	16	16

Senior Year

Convocation		
Major course (*Third major course with grade of 75 or better*)	3	3
Major course (*Fourth major course with grade of 75 or better*)	3	3
Electives to meet semester requirements		
	16	16

* A second year's work in English is required but may be taken during the freshman, sophomore, junior or senior year. See special language and English requirements.

† Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

★ Chemistry 3, 4 is required for pre-medical students and recommended for all who intend to take advanced work in sciences.

Detailed description of this curriculum appears on pages 128–131.

PRESCRIBED CURRICULUMS

Several prescribed programs of study intended to provide thorough training for business or professional life are available to students in the College of Liberal Arts. They are arranged in such manner as to permit considerable intense specialization while conserving the breadth and general culture of the students enrolled in them. They are less broad and general, however, than the General Liberal Arts curriculum. They are definitely vocational in character. All prescribed curriculums, except some established for the preparation of teachers, lead to the degree of bachelor of science.

Business Curriculum

The Business curriculum is designed to afford students an opportunity for training in basic business procedures and operations and at the same time to secure training in general cultural subjects. Business positions in retail stores (both independent and chain), banks, offices of public accountants, offices of manufacturing concerns, insurance organizations and other firms have been successfully filled for a number of years by graduates of this curriculum.

Women students interested chiefly in the secretarial phase of commercial life are referred to the Secretarial curriculum described on page 138.

The Business curriculum has been planned to emphasize foundation or cultural courses in the freshman and sophomore years, the specialized business courses being largely reserved for the junior and senior years with rather wide elective opportunities in the senior year. The program is outlined in detail on page 141. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140. Business students must obtain grades of 75 or better in 24 semester credits from the following courses: accounting 1, 2, 3, 4; economics 1, 2, 3, 4, 21, 22, 24, 53; Social Statistics 51; English 35.

Students registering in the curriculum who entered the university after September 1, 1938, are not required to complete economics 51 and 61; and students who entered the university after September 1, 1939, are required to complete English (35) and social statistics 51.

Students interested in business are advised to consult the supervisor, Professor A. W. Johnson, in his office in room 302, Morrill hall.

Coöperative Hospital Curriculum

Women students interested in nursing as a career are encouraged to consider this prescribed curriculum. It affords opportunity to prepare for examinations for registration as a nurse and enables the matriculant to secure a college degree. Nursing is becoming more and more a profession. The breadth of training beyond that usually received in a hospital training school is increasingly in demand particularly for those who aspire to executive or supervisory positions in nursing. The curriculum prepares for nursing only. Students interested in other phases of medi-

cal or applied biological activity are referred to the description of opportunities open to majors in zoölogy on pages 127–128.

A coöperative agreement has been established between the university and the Elliot hospital of Manchester whereby a student may complete work in five years for the bachelor of science degree, and graduate from the Elliot hospital prepared to take examinations for registration as a nurse. Students electing this curriculum are admitted to the Elliot hospital only after satisfactorily completing the requirements of the freshman and sophomore years at the university. The work of the succeeding three years is conducted at the hospital.

The program is outlined in detail on page 142. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140.

Students interested in selecting the Coöperative Hospital curriculum are advised to consult with the supervisor, Professor C. G. Dobrovolny, in his office in room 106A, Nesmith hall.

Hospital Dietetics Curriculum

Hospitals, clinics and various public and private health agencies employ dietitians to give advice on proper diets for the preservation of health or the treatment of disease, or to administer dietary departments in institutions caring for sick people. The American Dietetic association sets up certain standards for such curriculums, and the New Hampshire program is set up according to the association's specifications. See page 143.

In addition to the four-year program of work at the university, the student must successfully serve for one year as an interne in the dietary department of an approved hospital if she wishes membership in the American Dietetic association, or to obtain a position in an approved hospital. On occasion smaller hospitals give graduates positions as assistant dietitians without the fifth year of hospital training, but students interested in the hospital field are strongly urged to serve a year as internes if at all possible. The conditions under which this work may be taken vary with the hospital. Some of the best hospitals in this part of the country accept high-ranking New Hampshire graduates.

It is recommended further that students register for the course, home economics 48, *Field Work and Institutional Practice*, page 242, during the summer between the junior and senior year in order to test out their interest in and aptitude for hospital work before registering for the final work of the senior year.

Basic courses in both the physical and biological sciences are included in this program. General courses are not neglected, and there are some opportunities for electives. In addition, practical training and experience are given in the university dining hall where modern equipment and food service practices are actually demonstrated.

The Hospital Dietetics curriculum is essentially vocational. Students interested in broad, general programs with a mild emphasis on home

economics are counselled to major in the field in the General Liberal Arts curriculum, and should consult page 120.

Students interested in teaching home economics in secondary schools or in colleges should consult the description of the Home Economics Teacher Preparation curriculum which appears on page 152.

Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 134. Students interested in hospital dietetics are advised to consult the supervisor, Professor Helen F. McLaughlin, in her office in room 208, Pettee hall.

Hotel Administration Curriculum

Young men to whom a career in hotel work makes a strong appeal are invited to follow this four-year curriculum. Hotel work itself means hard work and long hours; the scope of the curriculum will bear this out. Since the university is favorably located near seacoast and mountain resort centers, a considerable emphasis is placed wherever possible on resort hotel problems. The four-year course is designed with the thought of producing the well-rounded education needed by the future executive rather than a mere training in the vocational work of the area of concentration; hence the introduction of cultural courses in history, economics, English, sciences, and others to be elected.

The basic work comprises four main divisions: foods, engineering, accounting, and specialized hotel work. About two-thirds of the total curriculum is prescribed by the requirements of the departments in these four groups together with the university and college requirements, leaving about one-third of the time open for electives in allied subjects or others of the student's choice. In order to maintain the continuity of courses as developed in this curriculum, freshmen should certainly elect hotel administration 1, accounting 1, 2 and mechanical engineering (1). The work in chemistry 1, 2 also is given with the needs of the food courses in mind and should be elected in preference to any other first-year science course.

To make certain that the hotel educational program contains some experience under working conditions, each student is required to secure before graduation a minimum of twenty points of hotel practice credit in addition to the requirements for the Hotel Administration curriculum. This will be gained through work in hotels where supervision will be given, regular reports submitted by the student, and the grade of work reported by the employer. Each week of work will constitute one point. Not more than twelve points may be secured for any one type of work performed, nor more than twenty points from a given hotel.

The program is outlined in detail on pages 144, 145. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140.

Students interested in hotel administration are advised to consult the supervisor, Professor R. R. Starke, in his office in room 219, Murkland hall.

Institutional Administration Curriculum

Trained managers of the dietary and residence departments of various institutions are in great demand today. Women students interested in preparing themselves to become food service directors in schools, colleges, tea rooms, and various private and public institutions are advised to register in the Institutional Administration curriculum and should consult the detailed requirements of the program which are set forth on page 146. The major emphasis of this program is in feeding groups of normally healthy people. Women students who are interested in food problems of people in poor health who have to be treated in hospitals or clinics are advised to follow the Hospital Dietetics curriculum, which is described on page 135.

The Institutional Administration curriculum, which is administered by the department of home economics, provides a good foundation in the physical and biological sciences, some general education obtained through elective courses, and affords a limited opportunity of securing practical experience, through work and observation, in feeding large groups of people, accomplished under the supervision of trained dietitians in the university dining halls. The successful completion of this curriculum qualifies the student to be a dietitian in a small institution or an assistant dietitian in a larger one, from which latter position she may advance to the position of head dietitian.

The curriculum is essentially vocational. Students interested in broad, general programs with a mild emphasis on home economics are counselled to major in the field of home economics in the General Liberal Arts curriculum and should consult page 120.

Students interested in teaching home economics in secondary schools or in colleges should consult the description of the Home Economics Teacher Preparation curriculum which appears on pages 152, 153.

The courses in the program are based upon the physical, biological and social sciences. The technical work in foods, nutrition, and dietetics is based on the principles of chemistry and physiology. That in sanitation necessitates a knowledge of chemistry and bacteriology. Provision is also made in the curriculum for a student to earn college credit for successful summer field work in an approved institution. The field demands an intensive and thorough training, but the employment opportunities are extensive and varied enough to make it worth the effort and time of the average student.

Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140. Registration in home economics 1, 2, *Home making*, is required of every freshman entering this curriculum. Students interested in institutional administration are advised to consult the supervisor, Professor Helen F. McLaughlin, in her office in room 208, Pettee hall.

Pre-medical Curriculum

Young men and women interested in careers as physicians or surgeons are counselled to select the Pre-medical curriculum. Matriculants are

cautioned to consider whether their interests are in the practice of medicine or surgery or whether they lie in the field of applied biology or nursing. Consideration of the opportunities open to majors in zoölogy in the General Liberal Arts curriculum as described on pages 127–128 is recommended.

Students who successfully complete the Pre-medical curriculum will be eligible for admission to any class A medical school. Owing, however, to the crowded condition of most medical schools, only those students who stand in the upper third of their class during their pre-medical work may be admitted. Some medical schools restrict the number of students admitted from any one pre-medical institution. Preference is always given to those students who have the most complete training and who stand highest in their pre-medical work.

It is highly desirable that a student spend four years at the university in preparation for medical training, although some medical schools do not require a bachelor's degree as a condition of admission. The four years of pre-medical work will, however, give the student a good broad foundation for his future medical work.

The curriculum is outlined in detail on page 147. Students registered in it are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140.

Students interested should consult the supervisor, Professor C. F. Jackson, in his office in room 101, Nesmith hall.

Secretarial Curriculum

A large number of college women find pleasant and profitable employment in secretarial positions in private, professional, commercial and industrial offices. Although in most cases the initial appointment is to a subordinate position in an office organization, the breadth of the college training plus the clerical skills acquired during the college course give opportunity for early assumption of greater responsibility.

Although the curriculum is essentially vocational, it provides for a rather liberal number of elections with which to secure the general education so essential to success.

Women students interested in other aspects of business are advised to consider the Business curriculum described on page 128, and those interested in less specialization are counselled to consider a major in economics in the General Liberal Arts curriculum as set forth on pages 113, 114.

Women preparing to teach commercial subjects in high school should include in their freshman programs Sec. St. 7, 8; in their sophomore programs, Sec. St. 1, 2, economics 3, 4, accounting 1, 2, English (second year), psychology 11, and education 42; in their junior programs, Sec. St. 3, 4, 9, 10, 13, and 17, economics 1, 2, and education 51, 52, and 61; in the summer school between their junior and senior years commercial subjects-education 93 (*Recent Problems in the Teaching of Commercial Subjects in the High School);* and in their senior programs, Sec. St. 11 and 18 and education-commercial subjects 94 (*Supervised Teaching in Com-*

mercial Subjects). Such students should enroll for 18 semester hours in at least three semesters in order to earn the 128 credits required for the degree.

The Secretarial curriculum is outlined in detail on page 148. Students registered in it are held for the requirements expected of students in all prescribed curriculums as set forth on that page. Secretarial majors who entered the university subsequent to September 1, 1939, must earn grades of 75 or better in the following courses: Sec. St. 3, 4, 9, 10, 17; Sec. St. 11, 13, 18 (unless excused in accordance with the statement below); economics and accounting, 4–11 credits, not confined to economics and accounting subjects listed in the curriculum (a total of 24 semester credits).

Students transferring from collegiate institutions and high school students with previous training in secretarial subjects are required to take the following courses: Sec. St. 3, 4, 9, 10, 17; Sec. St. 11, 13, 18 (unless excused). These students may be excused from

Sec. St. 11 by passing a 40-period certificate test.

Sec. St. 13 by passing a theory and practice test on each of the machines taught.

Sec. St. 18 by giving satisfactory evidence of having done acceptable secretarial work in a business office for one year. Work done for relatives will not be considered.

Transfers and high school students who have had one year of Gregg shorthand (or the equivalent of one year) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 1 for credit; likewise, those students who have had one year of typewriting (or the equivalent) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 7 for credit.

Secretarial majors who have had Sec. St. 5 in the University of New Hampshire or a similar course in another collegiate institution, or one semester of typewriting in high school or preparatory school, will be required to enter Sec. St. 27 instead of Sec. St. 7.

Students interested are advised to consult with the supervisor, Professor Doris Tyrrell, in her office in room 4, Morrill hall.

Social Service Curriculum

Social service includes, among others, the following fields: family case work, child care, child placement, settlement and neighborhood house, institutional work for defectives and dependents, municipal and county relief work, probation, correctional school and prison service, Y.M.C.A. and Y.W.C.A. secretarial service, municipal playground direction, child guidance clinics, community chest work, rural community organization.

Students may prepare for social work as a career under one of three plans. In every way the most desirable is to take the full four years at the university as a broad preparation for a two-year professional course in a recognized school of social work. If the resources necessary for such

extended professional training are lacking, it is possible to acquire the fundamental principles and techniques of social service by selecting the Social Service curriculum. To meet the needs of students desiring supervised urban training, three years may be taken at the university, and the fourth at an approved school of social work. The requirement of the senior year in residence will be waived and the degree awarded by the university on the successful completion of the fourth year in such a school.

The student should not confuse the Social Service curriculum with the major in sociology in the General Liberal Arts curriculum. The Social Service curriculum is essentially vocational.

The program is outlined in detail on page 149. Students registered in it are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140.

It should be noted that while the field work requirement of sociology 97, 98 may be completed during the college year in connection with a neighboring social agency (see description on page 284), it is strongly recommended that, where possible, students arrange to satisfy the requirement by spending the summer preceding the senior year in practical work under the supervision of a settlement, correctional institution, or case work agency in Boston, Pittsburg, Cleveland, Chicago, or other urban center.

Students interested are advised to consult the supervisor, Professor C. W. Coulter, in his office in room 201, Morrill hall.

Requirements for Degrees—All Prescribed Curriculums

1. Inasmuch as all prescribed curriculums prepare for specific vocations, students selecting them are held for the successful completion of all the courses prescribed, and generally in the sequence in which they are arranged on pages 141–149.

2. A student may elect a prescribed curriculum only with the consent of the head of the department in which the curriculum is offered.

3. A student registered in a prescribed curriculum must satisfy the general university and the special freshman requirements described under A and B of the General Liberal Arts curriculum on page 124. He must also complete successfully before graduation 12 semester credits of English, including English 1. Freshmen registering in a prescribed curriculum after September 1, 1940, are exempt from any foreign language requirement.

4. A student registered in a prescribed curriculum must complete 128 semester credits of which 64 must be with a grade of 70 or better. He must also pass at least 24 semester credits of the prescribed courses* with grades of 75 or better, and meet the quality requirements established for the curriculum in which he is registered.

5. A student registered in a prescribed curriculum must observe also the regulations governing all students of the College of Liberal Arts as set forth under F on page 130.

* Except in the secretarial curriculum. See page 148.

BUSINESS CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 124	16	16

Sophomore Year

Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
*Eng. (*A second year of English*)	3	3
Acct. 1, 2 (*Elementary Accounting*)	4	4
Econ. 3 (*Economic and Commercial Development of the U. S.*)	3	
Econ. 4 (*Economic and Commercial Geography*)		3
Electives to meet semester requirements		
	16	16

Junior Year

Convocation		
Acct. 3, 4 (*Intermediate Accounting*)	4	4
Econ. 1, 2 (*Principles of Economics*)	3	3
Econ. 21, 22 (*Commercial Law*)	3	3
Econ. 24 (*Marketing*)		3
Soc. Stat. 51 (*Social Statistics*)	3	
Eng. (35) (*Public Speaking*)		3
Electives		
	16	16

Senior Year

Convocation		
Econ. 53 (*Money and Banking*)	3	
Electives to meet semester requirements		
	16	16

* A second year of English must be taken before graduation.

Detailed description of this curriculum appears on page 134.

COÖPERATIVE HOSPITAL CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 1, 2	2	2
Eng. 1 (*Elementary Written and Oral English*)	3	3
Hist. 1, 2 (*Introduction to Contemporary Civilization*)	4	4
Biol. 1, 2 (*Man and the Living World*)	4	4
Chem. 1, 2 (*General Chemistry*)	4	4
	17	17

Sophomore Year

Convocation		
Phys. Ed. 3, 4	1	1
Eng. (*Second year of English*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Bact. 1, 2 (*General and Applied Bacteriology*)	4	4
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3	3
Elective: Other than in the natural sciences	3	3
	17	17

Junior Year

Soc. 1 (*Principles of Sociology*)	3	
Soc. 66 (*The Organization of Town and Country Life*)		3
Probation period, 4 months		
Materia Medica and Therapeutics		
Surgery and Gynecology		
Medicine		
Hygiene		

Intermediate Year

Psychology	3	3
Pediatrics		
Neurology		
Surgery		
X-Ray		
Dermatology		
Obstetrics		
Eye, Ear, Nose, Throat		
Orthopedics		
District Nursing		

Senior Year

Psychiatry		
Contagious diseases		
Operating Room		
Diet kitchen		
Obstetrics case room		

At the end of the senior year, a coöperative comprehensive examination will be given by the board of examiners to be composed of members of the university staff as well as others selected from a medical school. If necessary, at the completion of the senior year, students will be required to make up any hospital time lost.

Detailed description of this curriculum appears on page 134

HOSPITAL DIETETICS CURRICULUM

Freshman Year

	First Semester Credits	Second Semester Credits
See freshman requirements, page 129.		
Elective:		
Biol. 1, 2 (*Man and the Living World*)	4	4
	16	16

Sophomore Year

Convocation		
Phys. Ed. 3, 4	1	1
Eng. (*A second year of English*)	3	3
Chem. 1, 2 (*General Chemistry*)	4	4
H. Ec. 15, 16 (*Foods*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Electives to meet semester requirements		
	16	16

Junior Year

Convocation		
Phys. Ed. 5, 6	1	1
Psych. 11 (*Principles of Human Behavior*)	3	
Agr. Chem. 5 (*Organic and Biological Chemistry*)	5	
Agr. Chem. 6 (*Chemistry of Food and Nutrition*)		3
H.Ec. 25, 26 (*Child Development*)	3	3
H.Ec. 20 (*Dietetics*)		3
Econ. 1, 2 (*Principles of Economics*) or Soc. 1, 2 (*Principles of Sociology; Social Psychology*)	3	3
Elective:		
H.Ec. 48 (*Field Work in Institutional Practice or Extension*)		4–6
	16	16

Senior Year

Convocation		
Bact. 1 (*General Bacteriology*)	4	
Bact. 2 (*Applied Bacteriology*)		4
H.Ec. 49, 50 (*Quantity Cookery*)	2	2
H.Ec. 41 (*Institutional Management*)	3	
H.Ec. 43, 44 (*Institutional Practice*)	2	2
H.Ec. 46 (*Furniture and Textiles*)		3
H.Ec. 19 (*Diet Therapy*)	3	
Elective:		
Acct. 1 (*Elementary Accounting*)	4	
	16	16

Detailed description of this curriculum appears on page 135.

HOTEL ADMINISTRATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 129.		
Electives:		
H.A. 1 (*Orientation*)	1	
Acct. 1, 2 (*Elementary Accounting*)	4	4
M.E. (1) (*Mechanical Drawing*)		2
Chem. 1, 2 (*General Chemistry*)	4	4
H.A. 40 (*Lectures on Hotel Management*)		1
	16	16

Sophomore Year

Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
*Eng. (*A second year of English*)	3	3
Acct. 9, 10 (*Hotel Accounting*)	3	3
H.E. 15, 16 (*Foods*)	3	3
Econ. 1, 2 (*Principles of Economics*)	3	3
H.A. 21, 22 (*Introductory Hotel Engineering*)	4	4
H.A. 42 (*Lectures on Hotel Management*)		1
Electives:		
H.A. 23 (*Stewarding*)	1	
Hort. 61 (*Harvesting and Marketing*)	3	
Hort. 28 (*Elementary Landscape Gardening*)		3
Ent. 54 (*Household Insects. Medical Entomology*)		2
	16	16

Junior Year

Convocation		
H.A. 5 (*Hotel Operation*)	3	
H.A. 44 (*Lectures on Hotel Management*)		1
Psych. 31 (*General Psychology*) or	3	
Psych. 33 (*Psychology for Students of Commerce*)	3	
Psych. 36 (*Psychology of Personnel*)		3
H.E. 49, 50 (*Quantity Cookery*)	2	2
E.E. 31 (*Circuits and Appliances*)	4	
M.E. 40 (*Heating and Ventilating*)		2
H.E. 46 (*Furniture and Textiles*)		3
Electives:		
See sophomore electives		
French 1, 2 (*Elementary French*)	4	4
Econ. 61 (*Public Regulation of Business*)	3	
Econ. 53, 54 (*Money and Banking*)	3	3
A.H. 8 (*Meat and Its Products; Livestock Markets*)		2
	16	16

* A second year of English must be taken before graduation.

SENIOR YEAR

	First Semester Credits	*Second Semester Credits*
Convocation		
Econ. 21, 22 (*Commercial Law*)	3	3
H.A. 46 (*Lectures on Hotel Management*)		1
Electives:		
H.A. 6 (*Hotel Public Relations*)		2
H.A. 8 (*Front Office Procedure*)		1
H.A. 12 (*Financial Statements*)		2
H.E. 41 (*Institutional Management*)	3	
Soc. 88 (*Recreation and Leisure*)		3
Arch. 19, 20 (*Building Construction*)	3	3
M.E. 5, 6 (*Mechanical Laboratory*)	1	1
Acct. 5, 6 (*Advanced Accounting*)	4	4
Sec. St. 7, 8 (*Typewriting*)	2	2
Sec. St. 1, 2 (*Shorthand*)	3	3
	16	16

In addition to the requirements listed above, each student is required to secure before graduation a minimum of twenty points of hotel practice credit.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 136.

INSTITUTIONAL ADMINISTRATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 129.		
Electives:		
H.Ec. 1, 2 (*Homemaking*)	3	3
Biol. 1, 2 (*Man and the Living World*)	4	4
	16	16

Sophomore Year

Convocation		
Phys. Ed. 3, 4	1	1
*Eng. (*A second year of English*)	3	3
Chem. 1, 2 (*General Chemistry*)	4	4
H.Ec. 3, 4 (*Clothing Selection*)	3	3
H.Ec. 15, 16 (*Foods*)	3	3
Electives:		
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psych. Prin. of Secondary Education*)		3
	16	16

Junior Year

Convocation		
Phys. Ed. 5, 6	1	1
Agr. Chem. 5 (*Organic and Biological Chemistry*)	5	
Agr. Chem. 6 (*Chemistry of Food and Nutrition*)		3
H.Ec. 20 (*Dietetics*)		3
Econ. 1, 2 (*Principles of Economics*) or Soc. 1, 2 (*Principles of Sociology; Social Psychology*)	3	3
Electives:		
†H.Ec. 48 (*Field Work in Institutional Practice*)		4–6
H.Ec. 46 (*Furniture and Textiles*)		3
	16	16

Senior Year

Convocation		
H.Ec. 49, 50 (*Quantity Cookery*)	2	2
H.Ec. 41 (*Institutional Management*)	3	
H.Ec. 43, 44 (*Institutional Practice*)	2	2
H.Ec. 19 (*Diet Therapy*)	3	
Electives:		
Bact. 1, 2 (*Gen. Bact.; Applied Bact.*)	4	4
Acct. 1 (*Elementary Accounting*)	4	
	16	16

* A second year of English must be taken before graduation.
† Field work may be done during the summer.

Detailed description of this curriculum appears on page 137.

PRE-MEDICAL CURRICULUM *

Freshman Year

	First Semester Credits	Second Semester Credits
See freshman requirements, page 129.		
Electives:		
Chem. 3, 4 (*General Chemistry*)	4	4
Biol. 1, 2 (*Man and the Living World*)	4	4
	16	16

Sophomore Year

Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Eng. (*Second year of English*)	3	3
Chem. 25, 26 (*Introductory Quantitative and Qualitative Analysis*)	3	3
Zoöl. 15, 16 (*Comparative Anatomy of the Vertebrates*)	4	4
Elective:		
Lang. (*French or German*)	3	3
	16	16

Junior Year

Convocation		
Phys. 5, 6 (*Pre-Medical Physics*)	5	5
Chem. 53, 54 (*Organic Chemistry*)	5	5
Electives:		
Bacteriology	4	4
Advanced Chemistry	4	4
Economics	3	3
Advanced English	3	3
Foreign Language	3	3
Government	3	3
History	3	3
Mathematics	4	4
Psychology	3	3
Sociology	3	3
Advanced Zoölogy	4	4
	16	16

Senior Year

Convocation		
Advanced Zoölogy	4	4
Electives:		
Advanced Bacteriology	4	4
Physiological Chemistry	4	4
Economics	3	3
Advanced English	3	3
Foreign Language	3	3
Government	3	3
History	3	3
Mathematics	4	4
Psychology	3	3
Sociology	3	3
Advanced Zoölogy	4	4
	16	16

Detailed description of this curriculum appears on page 137.

SECRETARIAL CURRICULUM *

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 129.		
Electives to meet semester requirements		
	16	16

Sophomore Year

Convocation		
Phys. Ed. 3, 4	1	1
Eng. (*A second year of English*)	3	3
Econ. 3 (*Economic and Commercial Development of the U. S.*)	3	
Econ. 4 (*Economic and Commercial Geography*)		3
Acct. 1, 2 (*Elementary Accounting*)	4	4
Electives to meet semester requirements: Education, Language, Statistics, Sociology		
	16	16

Junior Year

Convocation		
Phys. Ed. 5, 6	1	1
Sec. St. 1, 2 (*Shorthand*)	3	3
Sec. St. 7, 8 (*Typewriting*)	2	2
Econ. 1, 2 (*Principles of Economics*)	3	3
Electives to meet semester requirements		
	16	16

Senior Year

Convocation		
†Sec. St. 3, 4 (*Advanced Shorthand*)	3	3
†Sec. St. 9, 10 (*Advanced Typewriting*)	2	2
Sec. St. 11 (*Filing*)	2	
Sec. St. 13 (*Office Machines*)		2
Sec. St. 17, 18 (*Secretarial Office Procedure and Practice*)	3	3
Electives to meet semester requirements		
	16	16

* Students preparing to teach secretarial subjects must elect in addition a sufficient number of courses in economics, accounting, and education to meet state requirements.

† A grade of 70 or better in Sec. St. 7 and 8 will be required of students electing Sec. St. 9 and 10; and a grade of 70 or better in Sec. St. 1 and 2 will be required of students electing Sec.St. 3 and 4.

Detailed description of this curriculum appears on page 138.

SOCIAL SERVICE CURRICULUM

FRESHMAN YEAR

	First Semester Credits		Second Semester Credits
See freshman requirements, page 129.			
Electives:			
Biol. 1, 2 (*Man and the Living World*)	4		4
Soc. 1 (*Principles of Sociology*)	3		
Soc. 2 (*Social Psychology*)			3
	16		16

SOPHOMORE YEAR

Convocation			
Mil. Sci. 3, 4	1½		1½
Phys. Ed. 33, 34 (*For Men*)	½		½
Phys. Ed. 3, 4 (*For Women*)	1		1
Eng. (*A second year of English*)	3		3
Psych. 31, (31) (*General Psychology*)	3	or	3
Soc. 61 (*Social Pathology*)	3		
Soc. 62 (*Community Organization*)			3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3		3
Electives:			
H.E. 25, 26 (*Child Development*)	3		3
Hist. 7, 8 (*The United States from 1790 to 1900*)	3		3
Sec. St. 7, 8	2		2
	16		16

JUNIOR YEAR

Convocation			
Phys. Ed. 5, 6 (*For Women*)	1		1
Soc. 71 (*Crime and Its Social Treatment*)	3		
Soc. 72 (*The Family*)			3
Soc. 75 (*Methods of Social Research*)	3		
Soc. 73 (*Principles of Social Case Work*)	3		
Psych. 54 (*Psychopathology*) or 52 (*Mental Hygiene*)			3
Electives:			
Econ. 1, 2 (*Principles of Economics*)	3		3
Govt. 3, 4 (*American Government*)	3		3
	16		16

SENIOR YEAR

Convocation			
Soc. 95, 96 (*Sociological Research*)	3		3
Soc. 97, 98 (*Social Service and Field Work*)	3		3
Soc. 88 (*Recreation and Leisure*)			3
Soc. 84 (*Methods of Social Progress*)			3
Electives:			
Eng. 35 (35) (*Public Speaking*)	3	or	3
Eng. 41 (41) (*Expository Writing*)	3	or	3
Zoöl. 5, 6 (*Organic Evolution*)	3		3
	16		16

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 139.

PREPARATION FOR TEACHING

University Teacher Preparation Curriculums

The University of New Hampshire has accepted the responsibility of preparing teachers for the secondary schools of New Hampshire and neighboring states. Two types of teacher preparation programs are offered. General Liberal Arts curriculum students may follow the advisory program of studies entitled the University Teacher Preparation Program. Then there are prescribed curriculums preparing teachers in the fields of agriculture, home economics, music education, and physical education. On pages 150 through 156 appear descriptions of these programs of study. Students interested in preparing for teaching are urged to become thoroughly familiar with the requirements of all of the teacher preparation programs before they make a choice of a particular program. This section of the catalog includes descriptions of teacher preparation programs offered by the university, not merely those offered by departments in the College of Liberal Arts.

The University Teacher Preparation Program

The university teacher preparation program presented on page 157 of this catalog includes the basic courses which it is believed are needed in the preparation of secondary-school teachers. These courses are designed to give thorough preparation in subject-matter fields in which the individual desires to teach. The courses in education aim to develop an appreciative understanding of adolescents and their educational needs, of our democratic society and its needs which our secondary schools should endeavor to meet, of the objectives and techniques of secondary-school teaching, and of the problems of teaching peculiar to the subject-matter fields in which the student intends to teach. The program also includes a semester of supervised teaching designed to give prospective teachers opportunity to teach under supervision and under as nearly normal conditions as can be arranged.

It is important to note that the university teacher preparation program may be completed not only by students majoring in the department of education, but also by students majoring in any of the departments of the university offering work the subject-matter of which is offered in secondary schools. General Liberal Arts curriculum students registered in and completing this program are released from the sophomore group requirements of the General Liberal Arts curriculum (see p. 129). All other requirements of the general liberal arts curriculum, including the language requirement, must be met. Students satisfactorily completing this program are entitled to the degree awarded to students majoring in their respective subjects and also to a certificate indicating that the university teacher preparation program has been completed.

This program is sufficiently flexible to provide the differentiation necessary to meet the needs of students who may be planning to teach: (1) English and the foreign languages, (2) English and the social studies, (3) mathematics and the biological or physical sciences, or (4) the com-

mercial subjects. Students who are planning to teach the commercial subjects take their teaching major and minors in the field of economics and commerce. Such students should include in their programs the following courses: secretarial studies 7–8, in the freshman year; secretarial studies 1–2, economics 3, 4, and accounting 1–2, in the sophomore year; secretarial studies 3–4, 9–10, 13, and 17, and economics 1–2, in the junior year; secretarial studies 11 and 18, commercial subjects-education 93 and education-commercial subjects 94, in the senior year.

Students who plan to complete the university teacher preparation program in the teaching of history or social studies should elect European history (history 19, 20) in their sophomore year.

Since the State of New Hampshire requires each candidate for certification to be prepared to teach three subjects which are referred to as "teaching major" and first and second "teaching minors,"* the university teacher preparation program includes the requirement of the satisfactory completion of 24 semester credits in a teaching major and of 12 semester credits in each of two teaching minors. This work may include any courses in the respective subject-matter fields taken in college. The student before registering for supervised teaching must complete with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.

Courses in Problems in the Teaching of High School Subjects. The courses in problems in the teaching of high school subjects are listed on pages 212, 213 and are open only to students who have completed the course in principles and problems of teaching in the secondary schools (education 61) in addition to the courses in the subject and related subjects designated as prerequisites. From these courses in problems in the teaching of high school subjects the student planning to complete the university teacher preparation curriculum selects his courses in the fields of his teaching major and teaching minor. To be eligible for supervised teaching in a subject the student must complete the course in the problems of teaching that subject with a grade of at least 75.

Courses in Supervised Teaching. The work in supervised teaching is under the direction of the professor and assistant professor of education serving as director and assistant director of student teaching. Students teach under the general direction of the members of the university faculty conducting the courses in problems of teaching the various school subjects. Students teach under the immediate direction of selected classroom teachers in high schools approved by the university.

In the supervised teaching courses the student participates in the conduct of class exercises and in the control of the classroom, at first chiefly as an observer, but gradually entering into teacher responsibilities until complete charge of the classroom is assumed.

* The requirements of the State of New Hampshire are a teaching major of 18 semester credits, a first teaching minor of 12 semester credits, and a second teaching minor of 6 semester credits. For detailed information concerning teaching majors and minors, consult the department of education.

This work is required in the university teacher preparation program, but will be open only to students whose applications are approved by the head of the department of education and the supervisor of student teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the office of the department of education on or before November 15 of the academic year in which the supervised teaching is to be done. *No applications will be considered unless the applicant has completed with a grade of at least 75 the following courses in education: 42, 51, 52, 61 and, with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.*

The applicant must also complete with a grade of at least 75 a course in the problems of teaching the subject in which he desires to do supervised teaching.

Prescribed Curriculums in Teacher Preparation

The University Teacher Preparation Curriculum in Agriculture. The university teacher preparation curriculum in agriculture gives the young man a broad training in the fundamental sciences and in general agriculture. In addition, he receives professional training in such educational subjects as psychology, principles of education, methods of teaching, and supervised student teaching. Students who complete the curriculum and have had the requisite amount of practical experience on a farm will be accredited as teachers.

There is a rapidly increasing demand for teachers of agriculture in our secondary schools. Local school boards are beginning to appreciate more fully the value of instruction in agriculture, both for the boys who will engage in agriculture after leaving high school, and as electives to maintain the interest of those young men who may wish to take at the university further education in this basic industry. As a result, there are a good many positions open for the young men who wish to make the teaching of agriculture a profession.

The first two years of the teacher preparation curriculum in agriculture are identical with the first two years of other curriculums in agriculture. For the prescribed program for the freshman and sophomore years, see page 98 of this catalog. For the specialized program of the junior and senior years, see pages 158, 159.

Home Economics Teacher Preparation Curriculum. The Home Economics Teacher Preparation curriculum for secondary school teaching and extension work, presented on page 160, aims to give adequate preparation to prospective teachers in the subject-matter of the several phases of the field of home economics, to acquaint them with educational procedures and modern methods of teaching, as well as to give some general education. The program is professional in character and does not offer as much opportunity for breadth of study as does the major program in home economics, described on page 120. The teacher preparation program is not to be confused with the major

program, nor with the Institutional Administration curriculum and the Hospital Dietetics curriculum, described on pages 146 and 143.

The teacher preparation curriculum provides for courses in general as well as special methods. Students spend the first part of the second semester of the senior year in supervised teaching in approved high schools. The last three to four weeks of the semester are spent on the campus in an intensive seminar where deficiencies revealed during the practice teaching period may be translated into assets. Graduate study is necessary for students who plan to be teachers of home economics in colleges and universities.

Women students interested in entering extension work, either as home demonstration agents or as boys' and girls' club agents in the 4-H Club program, are advised to follow the teacher preparation program. An opportunity is offered to such students to obtain some practical experience in extension work through home economics 48, *Field Work in Extension*, during the summer between the junior and senior years. A limited number of opportunities to do practice extension work during the latter part of the senior year are available to women students who have shown special aptitude in previous field experience in extension work.

The curriculum is outlined in detail on page 160. Students registered in it are held for the requirements expected of students in all prescribed curriculums, which are set forth on page 140. Registration in home economics 1, 2, *Homemaking*, is required of every freshman in the Home Economics Teacher Preparation curriculum.

Students who are interested should consult the supervisor, Professor Helen F. McLaughlin, at her office in room 208, Pettee hall.

Music Education Curriculum. This curriculum is designed to prepare teachers and supervisors of music in the public schools. It is based on the new demands for teachers possessing sound musicianship and a broad general culture in addition to a specialized training in music education. The satisfactory completion of this curriculum will satisfy the requirements for teachers and supervisors of music in the public schools in New Hampshire and in most other states.

To be admitted to this curriculum the student must give evidence of having a sound musical background. Freshmen who plan to enter this curriculum should elect music 11, 12 and one course in applied music in their first year program.

Teachers and supervisors of music education must maintain a satisfactory standing with other professional musicians of the community and should be able to play or sing acceptably. For this reason 12 semester hours in applied music are required before graduation: 8 semester hours in one subject and 2 semester hours in two other subjects. In addition all candidates must pass an examination in piano.

Students who wish to prepare themselves to teach other subjects in addition to music can do so by using their elective hours for this purpose. Such a program should be worked out in consultation with Professor A. M. Stowe, of the department of education.

The Music Education curriculum is outlined in detail on page 161. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 140.

Interested students should consult the supervisor of this curriculum, Professor B. W. Bergethon, in his office in room 101, Ballard hall.

THE UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR MEN. For men students who plan to prepare themselves for positions as teachers of physical education or directors of physical education, the university has organized the university physical education teacher preparation curriculum for men (see p. 162). This curriculum is a modification of the university teacher preparation program, which will enable men to prepare themselves to teach in two subject-matter fields as well as in physical education. It is open to men who have satisfactorily completed the freshman year, and are approved by the department of physical education for admission to physical education as a field of concentration. Freshmen who desire to select physical education should elect biology 1, 2 as their freshman science course. The satisfactory completion of this curriculum will entitle the student, in addition to his diploma, to a certificate indicating the fact. All students enrolled in this curriculum are required to register for physical education 31, 32, 33, 34 and must in their freshman and sophomore years pass skill tests in at least four of the individual and two of the team activities offered in the required two year program.

Sophomores who have been approved for concentration in physical education should enroll in the section of zoölogy 17, 18, provided for this group, as this course is basic to most of the courses in physical education required in the university physical education teacher preparation curriculum. They should also enroll in physical education 23, *Principles of Physical Education,* and in zoölogy 4, *Hygiene and Sanitation.*

Junior physical education students should include in their programs physical education 61, *Problems of Teaching in Physical Education,* and education (61), *Principles of Teaching in Secondary Schools.*

Senior physical education students should include in their programs physical education 65, *Administration of Physical Education in Secondary Schools,* and education-physical education 93, (93), *Directed Teaching in Physical Education.*

Physical education students who are candidates for the university physical education teacher preparation certificate must satisfactorily complete the work of two of five of the problems of coaching courses (physical education 40, 45, 46, 47, 48) in their junior and senior years. Students who wish to elect physical education 63, *Care and Prevention of Athletic Injuries,* should complete this requirement in the junior year.

Where it is possible, student teachers, who are physical education students, will be given an opportunity to do supervised teaching in physical education in the field and will be enrolled for education-physical education 94.

Candidates for the certificate are required to complete satisfactorily a teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools.

THE UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN. For women students who plan to prepare themselves for positions as teachers of physical education, the university has organized the university physical education teacher preparation curriculum for women (see page 163). This curriculum is a modification of the university teacher training program which will enable women to prepare themselves to teach in two subject matter fields as well as in physical education. It is open to women who have satisfactorily completed the freshman year and are approved by the department of physical education for admission to that field of concentration. Freshmen who desire to become physical education students should elect biology 1, 2 as their freshman science course.

Sophomores who have been approved for concentration in physical education should enroll in zoölogy 17, 18, *Human Anatomy and Physiology*, as this course is basic to most of the courses in physical education required in the university physical education teacher preparation curriculum. They should also enroll in physical education 13, 14 and in physical education 23, *Principles of Physical Education.*

Junior physical education students should include in their programs physical education 63, 64, *Theory and Coaching of Sports*, physical education 65, *Remedial Gymnastics*, and physical education 66, *Administration of Physical Education in the Secondary Schools.*

In the senior year, physical education students should enroll in physical education 91, *Problems in the Teaching of Physical Education for Women.* Where it is possible, student teachers who are physical education students will be given an opportunity to do supervised teaching in physical education in the field. They may be enrolled in education 94, supervised teaching in the teaching major or majors, during the second semester of the senior year. An alternative program for the second semester has been arranged whereby students who remain on the campus may elect physical education 92, *Directed Teaching.* This course provides an opportunity of teaching physical education under supervision in nearby elementary and secondary schools.

Physical education students are required to complete satisfactorily a teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools.

Electives offered by the department of physical education for women are: physical education 24, *Organized Camping*, physical education 36, *Play and Recreation*, and a group of individual and dual sports which do not appear in the required curriculum.

In addition, the following courses offered by other departments are suggested as valuable electives for physical education students: English 35, *Public Speaking;* English 40, *Stage Direction;* psychology 51, 52, *Psychology of Childhood and Mental Hygiene;* music 11, 12, *Elements of Music;*

sociology 1, 2, *Principles and Social Psychology;* sociology 57, 60, *Rural and Urban Sociology;* sociology 62, *Community Organization;* zoölogy 3, 4, *Hygiene and Sanitation.* Physical education students are advised to choose non-professional electives in the junior year. For courses outside the physical education department which are required of physical education students in the teacher preparation curriculum, see page 157.

Under physical education 3, 4, 13, 14, 5, 6, physical education students are required to include the following division of activities: one quarter each of the following: individual gymnastics, tennis, archery, community games, soccer, hockey, basketball, and informals; two quarters of folk dancing.

Other activities in the physical education program may be taken under electives (see page 271).

Students following any teacher training curriculum in the university are urged to elect for physical education the above activities.

Guidance of Students Preparing to Teach. Students who come to the University of New Hampshire for the purpose of preparing themselves for the teaching profession should consult with the head of the department of education early in their freshman year. Other students who are seriously considering teaching as a possible vocation are urged to consult with the head of the department of education before making a decision.

While the university has organized curriculums designed to prepare students for the profession of teaching, it also recognizes that it is important that students be prepared to meet the state teacher certification requirements of the states in which they may desire to teach. The department of education endeavors to keep its files of teacher certification requirements up to date. Students preparing to teach in states other than New Hampshire should, before the close of their sophomore year, consult the department of education concerning the requirements of the states in which they desire to teach and the most effective ways of meeting those requirements.*

* The New Hampshire State board of education grants a license to teach in New Hampshire secondary schools to candidates whose courses have included twelve semester hours of college work in education. All candidates must pass the examination set by the State board in Program of Studies and School Law. They may offer in lieu of examinations certified college courses in educational psychology, methods of teaching (general or special) and secondary education or school management.

The following courses may be considered as work in education: educational sociology, educational psychology, practice teaching, methods of teaching, history of education, school law, school management, general methods course, special methods course, and work in tests and measurements.

UNIVERSITY TEACHER PREPARATION PROGRAM *

Freshman Year

	First Semester Credits		Second Semester Credits
See freshman requirements, page 129.			
Elective:			
†Teaching major (*First year*)			
	16		16

Sophomore Year ‡

Convocation			
Mil. Sci. 3, 4	1½		1½
Phys. Ed. 33, 34 (*For men*)	½		½
Phys. Ed. 3, 4 (*For women*)	1		1
Eng. (*Advanced English*)	3		3
§Psych. 11 (*Principles of Human Behavior*) and Educ. 42 (*Psychological Principles of Secondary Education*)	3		3
Teaching major (*Second year*)	3		3
First teaching minor (*First year*)	3		3
Electives to meet semester requirements			
	18[1]		18[1]

Junior Year

Convocation			
Phys. Ed. 5, 6 (*For women*)	1		1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3		3
Educ. 61, (61) (*Principles and Problems of Teaching in the Secondary School*)	3	or	3
Teaching major (*Third year*)	3		3
First teaching minor (*Second year*)	3		3
Second teaching minor (*First year*)	3		3
Electives to meet semester requirements			
	18[1]		18[1]

Senior Year

Convocation		
‖ Teaching major (*Fourth year*)	3	
♯ First teaching minor (*Third year*)	3	
♯ Second teaching minor (*Second year*)	3	
Problems in teaching (*Major*)	3	
Problems in teaching (*Minor*)	3	
Supervised teaching		6–10
Electives to meet semester requirements		
	18[1]	10

* This is not a prescribed curriculum. This program may be completed by students majoring in any of the departments of the university offering work, the subject matter of which is offered in the secondary school. Students must, consequently, fulfill major requirements. A satisfactory completion of this program will entitle the student to a certificate indicating the fact.

† See section covering department of education in later pages for description of teaching major and teaching minor subjects.

‡ General liberal arts students satisfactorily completing this program are released from the sophomore group requirements of the general curriculum and are entitled to receive the degree given to students majoring in their respective subjects.

§ Or Educ. 11.

‖ Remainder of the total of 24 semester credits required for the satisfactory completion of the program.

♯ Remainder of the total of 12 semester credits required in each teaching minor.

[1] In at least three semesters it is necessary to enroll for 18 semester hours in order to earn the 128 credits required for the degree.

Detailed description of this curriculum appears on page 150.

UNIVERSITY TEACHER PREPARATION CURRICULUM IN AGRICULTURE*

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Agr. Econ. 13 (*Records*)	2	
Agr. Econ. 15 (*Marketing and Coöperation*)	3	
Agron. 14 (*Crop Production*)		3
A.H. 13 (*Feeds*)	3	
D.H. 64 (*Milk Production*)		3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Ag. Ed. 92 (*Problems in Teaching of High School Agriculture*)		3
M.E. (S23) (*Farm Shop*)	2	
Elective	5	6
	18	18
Prescribed or Recommended Electives		
Agron. 13 (*Crop Production*)	3	
Agron. 15 (*Soil Utilization*)	3	
Bact. 1, 2 (*General and Applied*)	4	4
D.H. 27, 30 (*Butter and Cheese; Bacteriology*)	2	4
D.H. 33 (*Dairy Cattle Judging*)	1	
Hort. 14 (*Elementary Vegetable Gardening*)		3
Hort. 28 (*Elementary Landscape Gardening*)		3
Hort. 61 (*Harvesting and Marketing*)	3	
P.H. 18 (*Incubation and Brooding*)		3
P.H. 21 (*Poultry for Teachers*)	2	
P.H. 23 (*Management*)	3	
Soc. 57 (*Rural Sociology*)	3	
Zoölogy 49 (*Genetics*)	2	

* See page 98 for the freshman and sophomore years.

It is suggested that each student consult with his adviser for assistance in developing his program to insure the proper selection of courses, and to secure a well balanced program which will meet the state standards for teaching.

SENIOR YEAR

	First Semester Credits	*Second Semester Credits*
Convocation		
Agr. Econ. 14 (*Farm Management*)		3
Agr. Eng. 16 (*Farm Shop*)		2
D.H. 34 (*Judging*)		1
Educ.-Agr. 93 (*Supervised Teaching in High School Agriculture*)	18	
Educ. (45) (*New Hampshire State Program of Studies and School Law*)		2
Elective		10
	18	18
Prescribed or Recommended Electives		
Agr. Eng. 12 (*Farm Power and Machinery*)		2
Agr. Eng. 14 (*Agricultural Drawing*)		1
A.H. 18 (*Meat and Its Products*)		2
A.H. 20 (*Sheep and Swine*)		3
English (35) (*Public Speaking*)		3
Geology (7) (*General*)		3
Hort. 44 (*Horticultural Practice*)		5
P.H. 24 (*Poultry Practice*)		4
Soc. 62 (*Community Organization*)		3
See junior electives		

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 152.

HOME ECONOMICS TEACHER PREPARATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 129.		
Elective:		
* H.Ec. 1, 2 (*Homemaking*)	3	3
	16	16

Sophomore Year

Convocation		
Phys. Ed. 3, 4	1	1
†Eng. (*A second year of English*)	3	3
Chem. 1, 2 (*General Chemistry*)	4	4
H.Ec. 3, 4 (*Clothing Selection*)	3	3
H.Ec. 15, 16 (*Foods*)	3	3
Psych. 11 (*Prin. of Human Behavior*)	3	
Educ. 42 (*Psych. Prin. of Secondary Education*)		3
	17	17

Junior Year

Convocation		
Phys. Ed. 5, 6	1	1
H.Ec. 20 (*Dietetics*)		3
Educ. 51, 52 (*Soc. Prin. of Secondary Education*)	3	3
H.Ec. 31, 32 (*Home Building and Furnishing*)	3	3
H.Ec. 5, 6 (*Clothing Construction*)	2	2
H.Ec. 25, 26 (*Child Development*)	3	3
Suggested Electives		
Agr. Eco. 8 (*The Rural Community*)		
Agr. Chem. 5, 6 (*Organic and Biol. Chemistry; Chemistry of Food and Nutrition*)		
	16	16

Senior Year

Convocation		
H.Ec. 33 (*Home Management*)	3	
H.Ec. 35 (*Home Management House*)	3	
Educ. 61 (*Prin. and Problems of Teaching in the Secondary School*)	3	
H.Ec.-Ed. 91 (*Problems in the Teaching of High School Home Economics*)	3	
H.Ec.-Ed. 94 (*Supervised Teaching*)		10
H.Ec.-Ed. 96 (*Seminar*)		3
Elective:		
[1] Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Electives to meet semester requirements		
	16	16

* Required of all students before graduation.
† A second year of English must be taken before graduation.
[1] Required of students planning to teach in New Hampshire.

Detailed description of this curriculum appears on page 152.

MUSIC EDUCATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 129		
Electives:		
Music 11, 12 (*Elements of Music*)	3	3
Applied Music (*Piano, Voice or Violin*)	1–2	1–2
	16	16

Sophomore Year

Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34 (*For Men*)	½	½
Phys. Ed. 3, 4 (*For Women*)	1	1
Eng. (*A Second year of English*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Music 21, 22 (*Harmony and Beginning Counterpoint*)	3	3
Music 37, 38 (*Music History and Literature*)	3	3
Applied Music (*Piano, Voice or Violin*)	2	2
Musical Organizations	½	½
	16½	16½

Junior Year

Convocation		
Phys. Ed. 5, 6 (*For Women*)	1	1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3	3
Music 35, 36 (*Orchestration*)	2	2
Music 47, 48 (*Music History and Literature*)	2	2
Mu-Ed. 91 (*Problems in the Teaching of Elementary School Music*)	3	
Mu-Ed. 92 (*Problems in the Teaching of Secondary School Music*)		3
Applied Music (*Piano, Voice or Violin*)	1	1
Musical Organizations	½	½
Electives		
	16	16

Senior Year

Convocation		
Music 43, 44 (*Conducting*)	2	2
Mu-Ed. 95 (*The Teaching of Stringed Instruments*)	2	
Mu-Ed. 96 (*The Teaching of Woodwind Instruments*)		2
Mu-Ed. 97 (*The Teaching of Brass and Percussion Instruments*)	2	
Ed-Mu. 93 (*Supervised Teaching of Elementary School Music*)	3	
Ed-Mu. 94 (*Supervised Teaching of Secondary School Music*)		3
Applied Music (*Piano, Voice or Violin*)	1	1
Musical Organizations	½	½
Electives:		
*Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
	16	16

* For students planning to teach in the State of New Hampshire.

Detailed description of this curriculum appears on page 153.

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR MEN

Freshman Year

	First Semester Credits	*Second Semester Credits*
Biol. 1, 2 (*Man and the Living World*)	4	4
Basic course in teaching major (*First year*)		
Other courses in accordance with the General Liberal Arts curriculum for freshman year (see page 129)		
	16	16

Sophomore Year

Convocation		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Eng. (*A second year*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Teaching major (*Second year*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Phys. Ed. 23 (*Principles of Physical Education*)	3	
Zoöl. 4 (*Hygiene and Sanitation*)		3
	18	18

Junior Year

Convocation		
Educ. 51, 52 (*Social Principles of Secondary Education*)	3	3
*Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Phys. Ed. 61 (*Problems of Teaching in Physical Education*)	3	
Educ. (61) (*Principles and Problems of Teaching in Secondary Schools*)		3
†Problems of coaching (*P.E. 45, 47 or 48*)	2	
†Problems of coaching (*P.E. 40, 46*)		2
Teaching major	3	3
Elective (*First teaching minor*)	3	3
‡Ed.-P. E. 93 (*Directed Teaching in Physical Education*)		3
Electives		
	18	18

Senior Year

Convocation		
Teaching major	3	
Phys. Ed. 65 (*Administration of Physical Education in Secondary Schools*)	3	
†Problems of coaching (*P.E. 45, 47 or 48*)	2	
‡Ed.-P. E. 93 (*Directed Teaching in Physical Education*)	3	
Problems in teaching (*Teaching major*) i.e., Eng-Ed. 91, etc.	3	
Supervised teaching in major or majors, *i.e., Ed-Eng. 94, etc.*		10
Elective:		
Phys. Ed. 63 (*Care and Prevention of Athletic Injuries*)	2	
	18	10

* For students planning to teach in the State of New Hampshire.

† Two problems of coaching courses are required.

‡ This course is required and may be elected either in the second semester of the junior or senior year or the first semester of the senior year.

Detailed description of this curriculum appears on page 154.

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN

Freshman Year

	First Semester Credits	*Second Semester Credits*
Biol. 1, 2 (*Man and the Living World*)	4	4
Basic course in second teaching major (*First year*)		
Other courses in accordance with the General Liberal Arts curriculum for freshman year (see page 129)		
Suggested Elective:		
Phys. Ed. 11, 12		
	16	16

Sophomore Year

Convocation		
Phys. Ed. 3, 4	1	1
Phys. Ed. 13, 14	1	1
Eng. (*A second year*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Second teaching major (*Second year*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Phys. Ed. 23 (*Principles of Physical Education*)	3	
Suggested Elective:		
First teaching minor, or Phys. Ed. 24		
	16–18[1]	16–18[1]

Junior Year

Convocation		
Phys. Ed. 5, 6	1	1
Educ. 51, 52 (Social Prin., etc.)	3	3
Phys. Ed. 63, 64 (The Theory, etc.)	3	3
Second teaching major	3	
Educ. (61) Prin. and Problems, etc.		3
Phys. Ed. 65 (Remedial Gymnastics)	3	
Phys. Ed. 66 (Admin. of Phys. Ed., etc.)		3
First teaching minor	3	3
Elective		
	16–18*	16–18*

* In at least three semesters it is necessary for students planning to do cadet teaching to enroll for 18 semester credits in order to earn the 128 credits required for the degree.

SENIOR YEAR

	First Semester Credits	*Second Semester Credits*
Convocation		
Phys. Ed. 7	1	
Second teaching major	3	
*Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Phys. Ed. 91 (*Problems in the Teaching of Physical Education for Women*)	4	
Problems in teaching (second teaching major—e.g., Eng.-Ed. 91, etc.)	3	
Teaching minor	3	
Supervised teaching in major or majors—e.g., Ed.-Eng. 94, etc.		10
	16	10
Alternate Second Semester:		
Phys. Ed. 92 (*Directed Teaching of Phys. Ed. for Women*)		3
Phys. Ed. 36 (*Play and Recreation*)		3
Phys. Ed. 24 (*Organized Camping*)		3
Teaching minor (*If not taken second semester of sophomore year*)		3
Electives		4
		16

* For students planning to teach in the State of New Hampshire.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 155.

COLLEGE OF TECHNOLOGY

GEORGE W. CASE, *Dean**
LEON W. HITCHCOCK, *Acting Dean*

DEPARTMENTS

ARCHITECTURE
CHEMISTRY AND CHEMICAL ENGINEERING
CIVIL ENGINEERING
ELECTRICAL ENGINEERING
MATHEMATICS
MECHANICAL ENGINEERING
PHYSICS

ENGINEERING EXPERIMENT STATION

REQUIREMENTS FOR DEGREES

Baccalaureate Degrees.—Each candidate for a degree must complete 144 semester credits and the courses required in one of the four-year curriculums.

A number of courses in the fine arts are open to students in the College of Technology. These various courses are listed in this catalog under the title Art; see page 109.

Students interested in these courses should consult with Mr. George R. Thomas of the department of architecture.

Professional Degrees.—Mechanical, electrical, and civil engineering graduates of the University of New Hampshire are eligible to register as candidates for professional degrees in these three branches of engineering.

These degrees will be granted, after the preparation and submission of acceptable theses, to those having not less than four years' satisfactory professional experience subsequent to the bachelor's degree, in which the applicants have wholly or in part supervised, directed or designed engineering work; or have been in responsible charge of instruction or research in engineering. The acceptability of the theses and professional experience is determined by an examining committee.

PROCEDURE.—The procedure for candidates for professional engineering degrees is as follows:

(1) Prepare an outline for a thesis after consultation with the head of the department concerned. This consultation may be by letter.

(2) When the thesis subject is accepted by the head of the department in which the degree is to be taken, the candidate will be registered in the registrar's office. This registration must be completed by October 1 of the academic year in which the degree is to be conferred.

(3) The first draft of the thesis must be submitted to the professor in

* On leave of absence.

charge not later than March 1, and the completed thesis in its final form by May 1.

(4) Pass an oral examination at the university covering the candidate's professional practice and the engineering principles underlying the thesis.

(5) Pay the commencement fee of $5.00 at the business office not later than 12 noon of the Saturday next preceding the date when the degree is conferred.

THESIS.—The thesis must be typewritten upon standard paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt-lettered on the first cover with title, name of author, degree sought, and year of graduation. The title page should bear the following statement: "A thesis submitted to the University of New Hampshire in partial fulfillment of the requirements for the professional degree of mechanical engineer (electrical engineer, civil engineer)."

Whenever a thesis is printed in any periodical, it must be designated as having been accepted as a professional engineering thesis by the University of New Hampshire.

Two bound copies must be filed before commencement day, one with the librarian and one with the head of the department in which the major work is done.

CURRICULUMS

The College of Technology offers the following four-year curriculums:

ARCHITECTURE CURRICULUM.—This curriculum is planned to prepare the student for efficient service as a draftsman or designer in an architectural or industrial organization and to provide him with a broad cultural background as a foundation for future independent practice. The diversified demands upon the professional architect make it advisable for the student to extend his formal education and to acquire experience in the practical fields of building construction. To this end, the curriculum is made sufficiently flexible to afford opportunities for preparation in such allied fields as architectural and engineering drafting, building contracting, construction superintendence, real estate development, industrial design as related to building products, salesmanship of building materials and equipment, evaluation and appraisal work, advertising and art printing, teaching.

The first three years aim to provide fundamental instruction and discipline in the art, science, theory and history of architecture, supplemented with such basic courses of study in related departments of the university as to give a proper background for independent work in architectural design and construction.

The fourth year aims to correlate the work of the first three years into practical problems of building design and construction as they are carried out through complete working drawings and specifications in the architect's office with the accompanying studies of office procedure including contract forms, accounting and bookkeeping. A thesis is re-

quired in the solution of some architectural problem of the student's selection calling for originality and inventiveness in the practical solution of a building type in his particular field of interest.

Chemistry and Chemical Engineering Curriculums. These curriculums are intended to prepare the student for the career of a professional chemist or chemical engineer and to give a good foundation for further study in graduate schools leading to original and independent research.

Instruction is imparted by lectures, recitations and carefully supervised laboratory work. The laboratory study is largely individual, and the work of each student is conducted with reference not only to the particular subject he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a training in either German or French to enable him to read with ease the chemical literature, and a grounding in mathematics and physics necessary for advanced theoretical chemistry or chemical engineering. In the chemistry option further courses in pure science and an independent research project are offered, whereas the option in chemical engineering offers a limited amount of special work in mechanics, electrical engineering and thermodynamics and thorough courses in undergraduate chemical engineering subjects. The student in both options is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference library and chemical periodicals.

Civil Engineering Curriculum.—This curriculum is designed to give the student theoretical and practical instruction in the principles upon which the practice of civil engineering is based, and to allow him the opportunity to apply these principles to problems of professional practice in the classroom, in the design room and in the field.

Civil engineering, the oldest of the engineering professions, covers a broad field of activity, including topographical, structural, transportation, hydraulic and sanitary engineering. This curriculum places about equal emphasis upon each of these various branches and allows the student some opportunity to develop his special interests through the thesis requirement.

Electrical Engineering Curriculum.—The electrical engineering curriculum is intended to meet the demands of young men fitting themselves for professional engineering in connection with the various applications of electricity.

Courses are presented by lectures, recitations and laboratory practice in such a manner as to make the material of immediate service to the graduate, as well as prepare him to understand the constantly increasing number of new problems that will be brought to him for solution.

Mechanical Engineering Curriculum.—The mechanical engineering curriculum is intended to prepare young men for positions in the field of the mechanical industries. The courses in the curriculum include mathematics, physics and chemistry, drawing, shop work, machine

design, electrical engineering, power engineering and also courses in economics and English. Throughout the curriculum the theoretical work is supplemented by practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, electrical, chemical and physical laboratories.

ALUMNI REPRESENTATION.—An advisory committee of alumni of the College of Technology, composed of men in direct contact with industry and practical professional affairs, serves to keep the faculty in touch with developments in the several fields which attract our graduates. Members of this committee also serve as consultants when important changes in curriculums, faculty personnel and policies of administration are considered. The members are:

Henry H. Calderwood, B.S. in E.E., '01, 20 Prospect Street, Saugus, Mass.
John T. Croghan, B.S. in M.E., '08, 574 Chestnut Street, Waban, Mass.
Robert A. Neal, B.S. in E.E., '10, 316 Burlington Road, Wilkinsburg, Pa.
Lester A. Pratt, Ph.D., '09, 7 Everett Avenue, Winchester, Mass.

ARCHITECTURE

	First Semester Credits	Second Semester Credits
Freshman Year		
Convocation		
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 1, 2 (*Algebra and Trigonometry*)	5	5
Eng. 1, 2 (*Elementary written and oral English*)	3	3
†Chem. 3 (*General Chemistry*)	4	
†M.E. 1 (*Engineering Drawing*)	2	
†M.E. S1 (*Elementary Shop Practice*)	3	
Arch. 2 (*Elements of Architecture*)		2
Arch. 4 (*The Significance of Architecture*)		2
Arch. 24 (*Shades and Shadows, Perspective*)		3
Arch. 26 (*Architectural Design*)		2
Arch. 38 (*Freehand Drawing*)		2
	18	20
Sophomore Year		
Convocation		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Phys. 1, 2 (*Introductory*)	4	4
M.E. 11, 12 (*Mechanics*)	3	3
Arch. 9 (*Principles of Architectural Design*)	2	
Arch. 14 (*Domestic Architecture*)		2
Arch. 27, 28 (*Architectural Design*)	6	6
Arch. 39, 40 (*Freehand Drawing*)	2	2
	19	19
Junior Year		
Convocation		
Mil. Sci. 13, 14, or approved elective	3	3
‡E.E. (13 *Circuits and Appliances*) *or* Eng. 35 (*Public Speaking*)	3	
‡M.E. 40 (*Heating and Ventilating*) *or* Phys. 54 (*Acoustics*)		2 or 3
Arch. 5, 6 (*History of European Architecture*)	2	2
Arch. 19, 20 (*Building Construction*)	3	3
Arch. 29, 30 (*Architectural Design*)	6	6
Arch. 41, 42 (*Water Color and Modeling*)	3	3
	20	19 or 20
Senior Year		
Convocation		
Mil. Sci. 15, 16, or approved elective	3	3
Eng. (41) (*Expository Writing*)		2
‡E.E. 31 (*Circuits and Appliances*) *or* Eng. 35 (*Public Speaking*)	3	
‡M.E. 40 (*Heating and Ventilating*) *or* Phys. 54 (*Acoustics*)		2 or 3
C.E. 7 Surveying	2	
Arch. 7 (*History of American Architecture*)	2	
Arch. 15 (*Professional Practice*)	2	
Arch. 16 (*Specifications and Appraising*)		2
Arch. 21 (*Architectural Seminar*)	1	
Arch. 31, 32 (*Architectural Design and Thesis*)	6	6
Elective		3
	19	18 or 19

† A course approved by the department head may be substituted for M.E. 1, M.E. S1, Chem. 3.

‡ M.E. 40 required of juniors in 1942–43.

Phys. 54, E.E. 31 and M.E. 40 required of juniors and seniors in alternate years beginning in 1943–44.

‡ Physics 54 required of seniors in 1942–43.

ARCHITECTURE

Recommended Electives

	First Semester Credits		*Second Semester Credits*
Arch. 37 (*Freehand Drawing*)	2		
Arch. 47, 48 (*Introduction to the Arts*)	3		3
Econ. 1, 2 (*Principles of Economics*)	3		3
Eng. 3, 4 (*Survey of English Literature*)	3		3
Geol. 7, (7) (*General Geology*)	3	or	3
Govt. 61 (*Community Planning*)	3		
Govt. 3, 4 (*American Government*)	3		3
Hist. 11 (*Ancient Orient*)	3		
Hist. 12 (*Greece*)			3
Hist. 13, 14 (*Roman*)	3		3
Hist. 15, 16 (*Medieval*)	3		3
Hist. 17, 18 (*Renaissance*)	3		3
Hist. 19, 20 (*Modern European*)	3		3
H.E. 11, 12 (*Pottery*)	3		3
Hort. 28 (*Elementary Landscape Gardening*)			3
Modern Language (*A year's work*)			
Music (*A year's work*)			
Phil. 81, 82 (*Historical Introduction to Philosophy*)	3		3
Sec. St. 5 (*Personal Use Typewriting*)	1		
Soc. 1 (*Principles of Sociology*)	3		
Soc. 2 (*Social Psychology*)			3

TECHNOLOGY CURRICULUM IN CHEMISTRY AND CHEMICAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
*Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
Math. 5, 6 or 15, 16 (*First Year Mathematics*)	5	5
Chem. 3, 6 (*General; Inorganic*)	4	6
M.E. 1 (*Engineering Drawing*)	2	
M.E. S1 (*Elementary Shop Practice*)	3	
Geol. (7) (*General Geology*)		3
	19	19

Sophomore Year

Convocation		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Chem. 21 (*Semi-micro Qualitative Analysis*)	4	
Chem. 22 (*Quantitative Analysis*)		5
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*Physics Laboratory*)	3	3
Ger. 1, 2 or 5, 6 (*German*) *or approved elective*	3	3
	19	20

Junior Year

Chemistry Option

Convocation		
Chem. 47, 48 (*Organic*)	5	5
Chem. 31 (*Stoichiometry and Tech. Quantitative Analysis*)	5	
Chem. 62 (*Advanced Quantitative Analysis*)		5
Chem. 83, 84 (*Physical Chemistry*)	5	5
Approved Elective (*Non-Physical Science*)	3	3
	18	18

Chemical Engineering Option

Convocation		
Chem. 47, 48 (*Organic Chemistry*)	5	5
Chem. 31 (*Stoichiometry and Technical Quantitative Analysis*)	5	
Chem. 71, 72 (*Unit Processes*)	2	2
Chem. 74 (*Unit Operations*)		3
Chem. 83, 84 (*Physical Chemistry*)	5	5
M.E. 9, 10 (*Mechanics*) *or approved elective*	3	3
	20	18

* If English 1 and 2 are removed by test, English 43–44 will be substituted.

Senior Year

Chemistry Option

	First Semester Credits	*Second Semester Credits*
Convocation		
Chem. 51, 56 (*Organic Chemistry*)	3	3
Chem. 71, 72 (*Unit Processes*)	2	2
Chem. 85, 86 (*Physical Chemistry*)	3	3
Chem. 87, 88 (*Chemical Literature and Seminar*)	1	1
Chem. 89, 90 (*Thesis*)	5	5
Elective (*Non Physical Science*)	3	3
	17	17

Chemical Engineering Option

Chem. 75 (*Unit Operations*)	3	
Chem. 76 (*Chemical Engineering Economics*)		3
Chem. 77 (*Unit Operations Laboratory*)	3	
Chem. 78 (*Chemical Plant Design*)		3
Chem. 79 (*Chemical Engineering Thermodynamics*)	3	
Chem. 80 (*Chemical Engineering Project*)		5
E.E. 33 (*Fundamentals of Electricity*)	4	
Chem. 87, 88 (*Chemical Literature and Seminar*)	1	1
Elective	3	6
	17	18

CIVIL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 or 15, 16 (*First Year Mathematics*)	5	5
Chem. 3, 4 (*General Chemistry*)	4	4
Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1 (*Elementary Shop Practice*)	3	
C.E. 2 (*Surveying*)		3
	19	19

Sophomore Year

Convocation		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
C.E. 3, 4 (*Surveying*)	6	3
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*Physics Laboratory*)	3	3
C.E. 6 (*Route Surveying*)		3
	18	18

Junior Year

Convocation		
C.E. 15 (*Engineering Materials*)	3	
C.E. 52 (*Hydraulics*)		4
C.E. 27, 28 (*Theory of Structures*)	4	4
C.E. 41, 42 (*A.S.C.E.*) (*Required*)		
Geol. 7 (*General Geology*)	3	
M.E. 9, 10 (*Mechanics*)	3	4
M.E. 21 (*Heat Power Engineering*)	3	
E.E. 36 (*Practical Electricity*)		4
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	19	19

Senior Year

Convocation		
C.E. 61 (*Highway Engineering and Transportation*)	4	
C.E. 62 (*Foundation Engineering*)		3
C.E. 63, 64 (*Hydraulic and Sanitary Engineering*)	4	4
C.E. 65 (*Structural Design*)	4	
C.E. 66 (*Reinforced Concrete Structures*)		4
C.E. 38 (*Thesis*)		2
C.E. 43, 44 (*A.S.C.E.*) (*Required*)		
Eng. 41 (*Expository Writing*)	2	
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	3	3
M.E. 65 (*Contracts and Specifications*)	3	
M.E. 66 (*Engineering Economy*)		3
	20	19

ELECTRICAL AND MECHANICAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 or 15, 16 (*First Year Mathematics*)	5	5
Chem. 3, 4 (*General Chemistry*)	4	4
Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1, S2, S3(*Elementary Shop Practice*)	3	3
	19	19

ELECTRICAL ENGINEERING

Sophomore Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*General Physics Laboratory*)	3	3
E.E. 1, 2 (*Electrical Engineering*)	2	2
M.E. 3 (*Machine Drawing*)	2	
M.E. 4 (*Kinematics*)		3
M.E. (S17) (*Machine Shop*)		2
C.E. 9 (*Surveying*)	2	
	18	19

Junior Year

Convocation		
E.E. 13, 14 (*Electrical Problems*)	2	2
E.E. 15, 16 (*A.I.E.E.*) (*Required*)		
E.E. 23, 24 (*Electrical Laboratory*)	2	2
E.E. 53, 54 (*Electrical Engineering*)	3	3
M.E. 9, 10 (*Mechanics*)	3	4
M.E. 25, 26 (*Heat Power Engineering*)	3	4
M.E. 27 (*Mechanical Laboratory*)	2	
Math. 51, 52, 58 (*Differential Equations and Vector Analysis*) or Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	18

Senior Year

Convocation		
*E.E. 7, 58 (*Electronics and Communications*)	3	5
E.E. 12 (*Illumination*)		2
E.E. 17, 18 (*A.I.E.E.*) (*Required*)		
*E.E. 19, 20 (*Thesis*)	3	3
E.E. 25 (*Electrical Laboratory*)	4	
E.E. 55 (*Electrical Engineering*)	3	
*E.E. 60 (*Advanced Circuit Theory*)		4
*E.E. 76 (*Electrical Laboratory*)		4
*E.E. 78 (*Advanced Electrons Laboratory*)		4
Phys. 51 (*Theory of Electrons*)	2	
Phys. 64 (*Electrical Measurements*)		3
C.E. 23 (*Hydraulics*)	2	
Eng. (41) (*Expository Writing*)		2
M.E. 65 (*Contracts and Specifications*)	3	
M.E. 66 (*Engineering Economy*)		3
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	3	3
Approved non-technical elective (*optional*)		3
	20	18

* E.E. 58, 19, 20, 60, 76, 78, are elective courses.

MECHANICAL ENGINEERING

Sophomore Year

	First Semester Credits	*Second Semester Credits*
Convocation		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*General Physics Laboratory*)	3	3
M.E. 3 (*Machine Drawing*)	2	
M.E. 4 (*Kinematics*)		3
M.E. 5, 6 (*Mechanical Laboratory*)	1	1
M.E. S17 (*Machine Shop*)	2	
C.E. (9) (*Surveying*)		2
	17	18

Junior Year

Convocation		
M.E. 59, 60 (*A.S.M.E.*)		
E.E. 37, 38 (*Electrical Machinery*)	4	4
M.E. 7, 8 (*Mechanics*)	4	4
M.E. 23, 24 (*Thermodynamics*)	3	3
M.E. 29, 30 (*Mechanical Laboratory*)	2	1
M.E. 13 (*Manufacture of Iron and Steel*)	2	
C.E. 24 (*Hydraulics*)		3
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	18

Senior Year

Convocation		
M.E. 61, 62 (*A.S.M.E.*)		
M.E. 17 (*Heat Treatment Laboratory*)	1	
M.E. 15, 16 (*Machine Design*)	3	3
M.E. 39 (*Heating and Ventilating*)	2	
M.E. 52 (*Mechanical Laboratory*)		2
M.E. 53, 54 (*Power Plants*)	2	2
M.E. 55, 56 or 37, 38 (*Automotive Engineering or Aeronautics*)	3	3
M.E. 65 (*Contracts and Specifications*)	3	
M.E. 66 (*Engineering Economy*)		3
M.E. 49 (*Thesis*)	2	
Eng. (41) (*Expository Writing*)		2
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	3	3
	19	18

DESCRIPTION OF COURSES

(Alphabetically Arranged)

The title of the course is given in small capital letters. The numeral designates the particular course. Odd numerals indicate courses offered in the first semester. Even numerals indicate courses offered in the second semester. Numerals enclosed in parentheses indicate that a course is repeated in the semester following. Thus, course 1 (1) is offered in the first semester and is repeated in the second semester.

Courses numbered 1–50 are for undergraduates only. Courses numbered 51–100 are for undergraduates and graduate students.

Following the title is the course description and the name of the instructor.

The next paragraph gives the following information in the order indicated: (1) prerequisites, if any; (2) the curriculums in which the course is required and the undergraduate year in which it should be taken; (3) the number of hours of recitations or laboratory periods required each week; (4) the number of semester credits the course will count in the total required for graduation. Lectures and recitations are fifty minutes in length. Laboratory periods are two and one-half hours in length.

Abbreviations have been employed to indicate the number of hours of work required of students in lecture, recitation and laboratory and the number of credits given for satisfactory completion of each course. These abbreviations should be interpreted as follows:

Cr.	Credit
Lab.	Laboratory
Lec.	Lecture
Prereq.	Prerequisite
Rec.	Recitation

All courses (unless otherwise marked) are open to students who have passed the prerequisites.

An elective course will be given only when there is a minimum of five students registered therefor.

If the numerals designating a course running through both semesters are connected by a hyphen, the first semester, or its equivalent, is a prerequisite for the second semester. If the numerals are separated by a comma, properly qualified students may take the second semester without having had the first.

Students with special needs or qualifications may at times be allowed to take certain courses for fewer than the number of credits shown in the course descriptions. This may be done only on the written recommendation of the head of the department offering the course and with the approval of the student's adviser and his college dean.

ACCOUNTING

(See Economics)

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

THOMAS G. PHILLIPS, *Professor;* STANLEY R. SHIMER, *Assistant Professor;* ROBERT H. HARPER, *Graduate Assistant;* LEONARD W. AURAND, *Graduate Assistant;* WALTER R. LEWIS, *Graduate Assistant.*

1. AGRICULTURAL CHEMISTRY. An introduction to organic chemistry and a brief survey of biological chemistry. Mr. Shimer, Mr. Phillips.

Prereq.: Chemistry 2. Required of sophomores in agriculture. 3 lec.; 2 lab.; 5 cr.

2. AGRICULTURAL CHEMISTRY. The chemistry of plant growth, soils and fertilizers. Mr. Phillips.

Prereq.: Agricultural chemistry 1 or its equivalent. Elective. 2 lec.; 1 lab.; 3 cr.

4. AGRICULTURAL CHEMISTRY. The chemistry of animal nutrition. Mr. Shimer.

Prereq.: Agricultural chemistry 1 or its equivalent. Elective. 2 lec.; 1 lab.; 3 cr.

5. ORGANIC AND BIOLOGICAL CHEMISTRY. An introduction to organic chemistry and a brief survey of biological chemistry. Mr. Shimer.

Prereq.: Chemistry 2. Required of juniors in home economics. 3 lec.; 2 lab.; 5 cr.

6. CHEMISTRY OF FOOD AND NUTRITION. The chemistry of food materials and of digestion, absorption, metabolism and excretion. Mr. Shimer.

Prereq.: Agricultural chemistry 5 or its equivalent. Elective for home economics students. 2 lec.; 1 lab.; 3 cr.

51-52. PHYSIOLOGICAL CHEMISTRY. The chemistry of fats, carbohydrates and proteins; colloids, enzyme action, digestion, metabolism and excretion. The qualitative and quantitative examination of blood and urine. Mr. Shimer.

Prereq.: Satisfactory preparation in organic chemistry and quantitative analysis. 3 lec.; 2 lab.; 5 cr.

53-54. AGRICULTURAL ANALYSIS. A study of the methods of analysis of soils, fertilizers, feeding stuffs, and other products important in agriculture. Mr. Phillips, Mr. Shimer.

Prereq.: Satisfactory preparation in organic chemistry and quantitative analysis. 1 lec.; 3 lab.; 4 cr. (Given in alternate years; offered in 1942–43.)

For courses primarily for graduate students, see catalog of the Graduate school.

AGRICULTURAL ECONOMICS

HARRY C. WOODWORTH, *Professor;* HAROLD C. GRINNELL, *Assistant Professor;* ARVAL ERIKSON, *Assistant Professor.*

5. INTRODUCTORY AGRICULTURAL ECONOMICS. A survey course introducing the student to the relationships between agricultural enterprises, forms and distribution of land uses, population and resources, farm management, marketing, prices, relationship of government to agriculture, etc. Mr. Erikson.

Required of freshmen in agriculture. Paired with animal husbandry 1; one-half semester. 3 lec.; 1 lab.; 2 cr.

11. AGRICULTURAL ECONOMICS. Production and distribution problems of the agricultural industry, the nature of farming costs, agricultural prices, farm credit, land utilization, federal and state action programs, and agricultural policy. Mr. Woodworth.

Required of juniors in certain curriculums. 3 lec.; 3 cr.

13. FARM RECORDS. A system of double-entry accounting applicable to the farm business is emphasized; construction and use of financial statements of the farm business; computation of income tax returns and of unit costs of production. Mr. Grinnell.

Required of juniors in certain curriculums. 1 lec.; 1 lab.; 3 cr.

14. FARM MANAGEMENT. The organization of the farm business from the point of view of efficiency and greatest continuous profit. Types of farming, factors affecting financial success, measures of financial success, cropping systems, livestock problems, labor problems, etc. Practical problems in analyzing typical farm businesses and in the reorganization of at least one near-by farm. Mr. Grinnell.

Required of seniors in agriculture, except those registered in agricultural chemistry, botany, entomology, forestry and poultry husbandry. 2 lec.; 1 lab.; 3 cr.

15. AGRICULTURAL MARKETING AND COÖPERATION. Functions and methods of marketing, and movement of principal agricultural products from farm to consumers. The essential characteristics of coöperative development in this country, its present importance, and principles underlying sound organization. Types of coöperatives, legal phases, problems in finance, and functions of the coöperatives are treated. Mr. Grinnell.

Required of juniors or seniors in agriculture except those registered in agricultural chemistry, botany, entomology, forestry and poultry husbandry. 3 lec.; 3 cr.

51, 52. SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. Special assignments in readings and problems to satisfy students' needs may be arranged in special cases by permission of the head of the department. Mr. Woodworth, Mr. Grinnell, Mr. Erikson.

Hours of meeting and number of credits to be arranged.

53. Agricultural Prices. Quantity-price relationships, measures of shifts in demand and supply, determination of prices, price stabilization, market discrimination, time elements in prices, commodity futures, etc. Mr. Erikson.

Elective subject to approval of instructor. 3 lec.; 3 cr.

54. Agricultural Policy. Public policies involving conservation and agriculture will be studied and appraised. Production control, submarginal land purchase, soil conservation, forest regulation, storage control, dumping, reclamation, effect of various patterns of land utilization, the objectives and effect of various action programs. Mr. Woodworth.

Elective subject to approval of instructor. 3 lec.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. *(See page 273.)*

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61–62.

AGRONOMY AND AGRICULTURAL ENGINEERING

Ford S. Prince, *Professor;* Leroy J. Higgins, *Assistant Professor;* George M. Foulkrod, *Assistant Professor;* Paul T. Blood, *Assistant Professor;* C. Loyal W. Swanson, *Instructor.*

Agronomy

2. Soils. The nature and properties of soils, with special consideration of the fundamental physical, chemical and biological processes and characteristics of productive soils. An introductory course for all students in the College of Agriculture and fundamental for those who continue in agronomy work. Laboratory work will supplement some of the more important principles considered in lectures. Mr. Higgins.

Required of freshmen in agriculture. Paired with entomology 6; one-half semester. 3 lec.; 1 lab.; 2 cr.

4. Fertilizers. The occurrence and function of plant food materials in soils and the use of manure and fertilizers in crop production. Special attention to the production, care and preservation of manure, to the compounding of fertilizers, and the response of different types of crops. Mr. Prince.

Required of sophomores in agriculture. Paired with dairy husbandry 6; one-half semester. 3 lec.; 1 lab.; 2 cr.

13-14. Crop Production. An introduction to the general study, considering distribution, choice, growth processes, cropping practices,

preparation of seed beds, care, improvement and breeding; also a detailed study of root crops and potatoes. Second semester continues in more detail concerning forage, cereals, and other crops grown in New England. Laboratory work in identification and judging. Hayland and pasture management will be emphasized. Mr. Higgins.

Required of juniors in agriculture, with a few exceptions. Teacher preparation majors may, by permission of the instructor, take course 14 without course 13. 2 lec.; 1 lab.; 3 cr.

15. Soil Utilization. Classification, utilization and management of soils, particularly those of New Hampshire. Available literature will be cited. Laboratory will consist of practical soil management and utilization problems, field trips and mapping. Mr. Higgins.

Prereq.: Agronomy 2. Elective for seniors. 2 lec.; 1 lab.; 3 cr.

16. Seed Testing. Official method of analysis of agricultural seeds for purity and germination, the identification of seeds, and the technique of using equipment in weighing, germinating, counting, estimating, etc., for official reports. Mr. Higgins.

Prereq.: Botany 1 and agronomy 14. Elective for a very limited number of seniors. Hours arranged. 1 lab.; 1 cr.

51, 54. Agronomy Seminar. Library and reference work on special phases of soil and crops problems. Practice in looking up literature and in preparation of reports and abstracts. Mr. Prince and staff.

Prereq.: Agronomy. 1, 2, 3-4. Number of credits and hours to be arranged.

56. Forest Soils. A study of the relationship between soils and forestry, which includes a study of soil type and group identification, identification and analysis of the forest floor and of forest soils, the use of the soil survey for purposes of the forester and a discussion of the fertilization of forest soils. Mr. Prince and staff.

Prereq.: Chemistry 1, Agronomy 1 and certain forestry courses. 1 lec.; 2 lab.; 3 cr.

58. Soil Classification and Mapping. A study of the origin, morphology, classification and mapping of soils. Consideration is given to the development of the Great Soil Groups of the world, including their influences on the agriculture that has developed thereon, and special emphasis will be devoted to the soils of New Hampshire in classification, mapping and the relation of the various groups to crop production. Mr. Swanson.

Prereq.: Agronomy courses at the discretion of the instructor. 1 lec.; 2 lab.; 3 cr.

60. Soil Conservation. The effects and control of erosion in the United States, including a study of the causes of erosion, cropping systems, fertilizer practices and structural devices that have been found

of importance in controlling erosion and in preserving the value of the soil for future generations. Mr. Prince, Mr. Foulkrod, Mr. Higgins, Mr. Swanson.

Prereq.: Agronomy 1 and 2, and either 3 or 4. 1 lec.; 2 lab.; 3 cr.

Agricultural Engineering

5. Basic Agricultural Engineering Applications. Farm mechanics; farm water supply and sanitation; farm machinery and power applications; farm drawing and sketching; and types and purposes of farm buildings are covered in theory and demonstration. Mr. Foulkrod.

Required of sophomores in agriculture. Paired with horticulture 1; one-half semester. 3 lec.; 1 lab.; 2 cr.

12. Farm Power and Machinery. The farm tractor and its special tools. A review of the development of farm machines, especially those of economic importance in this section. Care, repair and adjustment will be carefully considered in the laboratory, supplemented by operation under actual field conditions. Four to six makes of modern tractors, several gas engines and a variety of field machines are available. Mr. Foulkrod.

Prereq.: Agricultural engineering 5. Recommended for seniors in general agriculture, animal husbandry, dairy husbandry, and poultry husbandry. Elective for all other agricultural juniors and seniors. 1 lec.; 1 lab.; 2 cr.

13. Electric Farm Power. The comparative utility of individual plant and central station current; rural line extension procedure; proper wiring for farm applications with particular emphasis on household, farmstead, dairying, poultry farm and horticultural uses. The economics of various methods, cost of operation, care and maintenance of equipment, quality of results obtainable and effect on the farm labor problem. Mr. Foulkrod.

Recommended for seniors in animal husbandry, dairy husbandry and horticulture, and juniors in poultry husbandry. Elective for all other agricultural juniors and seniors. 2 rec.; 1 lab.; 3 cr.

14. Agricultural Drawing. Designed to meet the needs of all agricultural students. The elementary principles of drawing and lettering, the application of these principles to the making of charts, graphs, maps, machines and shop sketches, as well as to plans for minor farm buildings. Mr. Foulkrod.

Elective for any student. 1 lab.; 1 cr.

15. Farm Buildings and Equipment. Lectures on types and purposes of farm shelters, materials, equipment and sanitary requirements. Drafting room work in design and laboratory work in construction, with special attention to remodeling existing buildings. Mr. Foulkrod.

Prereq.: Agricultural engineering 14. Elective for all juniors and seniors in agriculture. 1 lec.; 1 lab.; 2 cr.

16. Farm Mechanics Shop. Planned to give seniors in teacher preparation practice in farm mechanics; to develop skill with tools, and general knowledge of farm mechanics applications. A modern farm shop is employed. Mr. Foulkrod.

Required of agricultural teacher preparation seniors. 2 lab.; 2 cr.

ANIMAL HUSBANDRY

Loring V. Tirrell, *Professor;* Fred E. Allen, *Assistant Professor;* Harry A. Keener, *Instructor.*

1. Types and Market Classes of Livestock. Origin, history, development, characteristics, and adaptability of the different types of horses, cattle, sheep and swine to different conditions of climate and soil. One afternoon each week devoted to judging. Mr. Tirrell.

Required of freshmen in agriculture. Paired with agricultural economics 5; one-half semester. 3 lec.; 1 lab.; 2 cr.

11. Livestock Judging. The principles and practice of judging horses, beef cattle, sheep and swine, and of market classes and grades. The university judging teams for such expositions as the Eastern States at Springfield and the International at Chicago are selected from students taking courses 11 and 14. Trips are taken to some of the best breeding establishments in New England. Mr. Tirrell.

Required of sophomores or juniors electing animal husbandry. 1 lab.; 1 cr.

13. Feeds and Feeding. The character, composition and digestibility of feedstuffs, and the methods of feeding different kinds of farm animals. Numerous samples of grains and by-products are used. Practice in calculating rations. Mr. Tirrell.

Required of seniors in animal husbandry, dairy husbandry, general and teacher preparation curriculums. 3 lec.; 3 cr.

14. Advanced Livestock Judging. A continuation of animal husbandry 11 and open to students who have previously taken 11. Mr. Tirrell.

Required of sophomores or juniors. 1 lab.; 1 cr.

15, 16. Veterinary Science. Systematic anatomy of the different farm animals, animal physiology, and the prevention of animal diseases. In the second semester, the more common diseases of farm animals, their prevention and control. Mr. Allen.

Required of juniors in animal husbandry. Elective for others. 3 lec.; 3 cr.

18. Meat and Its Products; Livestock Markets. A study of meat, farm slaughter, curing and identification of cuts; livestock markets, stockyards and transportation. Occasional trips will be taken to slaughter houses and packing plants. Mr. Tirrell.

Required of seniors in animal husbandry. Elective for others. 1 lec.; 1 lab.; 2 cr.

19. Management of Horses and Beef Cattle. Lectures and recitations upon the care of brood mares and cows, management of stallions and bulls, the breaking and training of colts, preparation of animals for the show ring, the management of pure-bred beef herds, and the feeding and handling of steers. Mr. Tirrell.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 1 lab.; 3 cr.

20. Sheep and Swine Husbandry. The judging, breeding, feeding, management and preparation for the show ring of sheep and swine, with special reference to New Hampshire conditions. Mr. Tirrell.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 1 lab.; 3 cr.

22. Advanced Livestock Judging. A repetition of course 14. Mr. Tirrell.

Elective only for animal husbandry students who have completed 11 and 14. 1 lab.; 1 cr.

51. Animal Breeding. The principles and practices of breeding farm animals, including cross-breeding, in-breeding, selection, inheritance, breed analysis, reproductive efficiency, fertility, sterility. Mendelism in relation to farm animals, acquired characters and variation. Practice is given in tracing and studying pedigrees. Mr. Keener.

Required of seniors in animal husbandry. 2 lec.; 1 lab.; 3 cr.

52. Animal Husbandry Seminar. Library and reference work and the preparation of papers on various animal husbandry subjects of timely importance. Mr. Tirrell, Mr. Keener.

Required of seniors in animal husbandry. Elective for others. Hours and credits to be arranged.

For courses primarily for graduate students, see catalog of the Graduate school.

ARCHITECTURE

Eric T. Huddleston, *Professor;* George R. Thomas, *Associate Professor;* Arnold Perreton, *Assistant Professor;* Orval F. Hempler, *Graduate Assistant.*

The courses marked "Elective by permission" are open to all students in the university. (See also Arts section of this catalog.) Other courses, not so marked, may be elected only when sufficient evidence of student interest and purpose is demonstrated to the satisfaction of the department.

2. Elements of Architecture. The fundamentals of architectural appreciation and expression. Illustrated lectures on the basic modern building materials, the construction and design fundamentals of architectural elements such as walls, columns, floors, ceilings, roofs, doors,

windows, ornaments, etc., and their respective terminology. Also, by means of the students' required collection of architectural illustrations, is shown the varied application of the elements and their fundamental relation to contemporary architectural usage. Mr. Perreton.

Elective by permission. Required of freshmen in architecture. 2 rec.; 2 cr.

4. The Significance of Architecture. Non-technical, requiring no previous architectural experience. A comprehensive view of the architectural profession, its allied arts, and the building construction industry to the end that the student's interest in further study in these fields may be better directed. Mr. Huddleston.

Elective by permission. Required of freshmen in architecture. 2 rec.; 2 cr.

5-6. History of European Architecture. Illustrated lectures with assigned reading and sketches on the historical development of the successive periods, with an analysis of the environment, the style evolved, and the chief contributions of each period to architectural expression. Mr. Perreton.

Elective by permission. Required of juniors in architecture. 2 rec.; 2 cr.

7. History of American Architecture. Illustrated lectures with assigned reading and sketches on the historical development of the successive periods. The social conditions, the type of architecture, the work of the outstanding architects in the various geographical sections, and the chief contribution of each period to architectural expression. Mr. Perreton.

Elective by permission. Required of seniors in architecture. 2 rec.; 2 cr.

9. Principles of Architectural Design. Illustrated lectures with assigned reading on the study of individual needs and environmental factors which influence architectural design; principles governing the organization of space, structure, and aesthetics and their application to the design analysis of various types of buildings. Aims to develop a basis for the understanding and expression of use, beauty and character in present-day architecture. Mr. Perreton.

Elective by permission. Required of sophomores in architecture. 2 rec.; 2 cr.

14. Domestic Architecture. A brief history of domestic architecture with special emphasis on early American housing as a basis for an appreciation of the New England colonial architecture. Modern housing problems, including the relation of the house plan to family requirements, to the individual site, to the garden, to accessory buildings, and to the community, with special consideration of economy in design and material, as it affects initial building and maintenance costs, and of the need

for intelligent coöperation on the part of the prospective owner with the architect and builder. Mr. Huddleston.

Elective by permission. Required of sophomores in architecture. 2 rec.; 2 cr.

15. Professional Practice. The personal, ethical, business and legal relations of the architect with clients, contractors, craftsmen, etc., and the relations that should exist between the architect and the community in which he lives. Procedure in the conduct of an architect's office, i.e., contract forms, bookkeeping, and accounting as they apply to professional work. Mr. Huddleston.

Required of seniors in architecture. 2 rec.; 2 cr.

16. Specifications and Appraising. The fundamentals of specification writing and the preparation of an outline specification adapted to the requirements of the thesis problem designed by each student. Methods of estimating and appraising buildings, both before and after construction. Mr. Huddleston.

Required of seniors in architecture. 2 rec.; 2 cr.

19-20. Building Construction. The principles of structural design and an analysis of structural systems as applied to wood frame house, light and heavy timber, steel and reinforced concrete construction. Emphasis is on the selection of structural systems in the solution of various types of construction problems; also the practical methods used in applying the various materials of construction as they occur in modern practice, and the introduction of plumbing, heating, ventilating, and electrical equipment. Mr. Huddleston.

Prereq.: Architecture 28 and mechanical engineering 12.
Required of juniors in architecture. 3 lab.; 3 cr.

21. Architectural Seminar. Library research and the preparation of papers on approved subjects related to the thesis problems. Each student is required to lead the discussion on his subject. Mr. Huddleston.

Required of seniors in architecture. 1 rec.; 1 cr.

24. Shades, Shadows and Perspective. Determination of conventional shades and shadows in architectural drawings; architectural application of descriptive geometry; theory of perspective and practical construction of perspective drawings. Rendering in wash of problems illustrating light, shade, and shadow. Mr. Thomas.

Elective by permission. Required of freshmen in architecture. 1 lec.; 2 lab.; 3 cr.

26. Architectural Design. Drafting room exercises paralleling the lectures on elements of architecture (Architecture 2). The accepted methods of architectural drafting. Measured drawings showing the relation of material, construction and design, drawn from field sketches

and photographs of existing elements. Design studies of interior and exterior elements and motives. Mr. Perreton.

Architecture 2 must be taken either in parallel or as a prerequisite. Elective by permission. Required of freshmen in architecture. 2 lab.; 2 cr.

27-28. ARCHITECTURAL DESIGN. A progressive series of competitive problems in the composition of architectural elements in interior and exterior design, with special emphasis given to the correct use of the modern materials and structural forms of design. Mr. Thomas.

Prereq.: Architecture 24 and 26. Elective by permission. Required of sophomores in architecture. 6 lab.; 6 cr.

29-30. ARCHITECTURAL DESIGN. A progressive series of competitive problems applying the materials, elements and principles of architecture to the design of contemporary buildings. Special emphasis given to the design of residential, recreational, commercial and municipal buildings of town and small city scale. Mr. Perreton.

Prereq.: Architecture 28. Required of juniors in architecture. 6 lab.; 6 cr.

31-32. ARCHITECTURAL DESIGN AND THESIS. The design of the first semester includes a practical course of building design to familiarize the student with the fundamental process of working drawing development in the architect's office. A residence or small public building will be designed to conform to the specified requirements of hypothetical clients. This is followed with working drawings and details, including structural and equipment drawings. The design for the first half of the second semester will include a collaborative problem in a civic or residential development. The thesis for the second half includes an architectural research project. An approved project proposed by the student will be used. The purpose of the project is to provide the training and opportunity to do individual research, to exercise originality and inventiveness in the practical solution of a building type in his particular field of interest. Mr. Perreton and Mr. Huddleston.

Prereq.: Architecture 30. Required of seniors in architecture. 6 lab.; 6 cr.

33-34. ARCHITECTURAL DESIGN. An approved program proposed by the student will be used for advanced study. Mr. Perreton.

Prereq.: Architecture 30. Elective by permission only. Credits to be arranged.

37. FREEHAND DRAWING. Studio exercises in graphical representations designed to stimulate and develop the student's expression of creative thoughts. Original ideas will be guided through the process of development by criticism and suggestions only, the student being given perfect freedom for self-expression. Mr. Thomas.

Elective by permission. 2 lab.; 2 cr.

38. FREEHAND DRAWING. Elementary drawing in various media from casts, still-life and nature, aiming at the stimulation and develop-

ment of creative thought through the study of fundamental forms. Students desiring a foundation in elementary anatomical illustration will be given problems suited to their specific field of work. Mr. Thomas.

Elective by permission. Required of freshmen in architecture. 2 lab.; 2 cr.

39-40. Freehand Drawing. Advanced studio exercises in various media from casts and from life, with attention to composition, accurate reproduction of proportions, the principles of freehand perspective, and the expression of mass by means of line and simple light and shade. Weather permitting, sketching from nature will supplement the work in the studio. Mr. Thomas.

Elective by permission. Required of sophomores in architecture. 2 lab.; 2 cr.

41-42. Water Color and Modeling. Exercises in the handling of wash; studies in water color from documents, photographs and still-life; supplemented with lectures presenting the theories of color, scientific and aesthetic, and their application. Outdoor sketching, if weather permits. Simple creative exercises in modeling clay, followed by original designs from programs. Mr. Thomas.

Elective by permission. Required of juniors in architecture. 1 lec.; 2 lab.; 3 cr.

45, 46. Advanced Freehand Drawing. A general advanced study of special types, depending upon the student's previous training. A variety of studio work under individual supervision and criticism. Mr. Thomas.

Special permission must be obtained from the head of the department before registering in this course. Hours and credits to be arranged.

47-48. Introduction to the Arts. A broad historical survey of man's creative efforts in their relation to contemporary cultural and social movements, presented as a background for interpreting the place of the arts in individual and community life of today. Illustrated lectures with assigned readings. Mr. Thomas.

Elective for sophomores, juniors, and seniors. 3 lec.; 3 cr. (Formerly given as English 29, 30.)

49, (49) Stagecraft. This course is given in conjunction with Play Production [English 5 (5)], and is designed to give selected students practical experience in artistic and technical projects connected with staging plays. It is designed also to give students in technical fields an opportunity to apply in practice some of the theoretical knowledge acquired in formal courses. It includes scene design and construction, scene painting and lighting, stage costuming, mechanical effects, and the technique of stage management. This is not an elective course, but qualified students are chosen for it on the basis of their respective abilities. The work of the course is supervised by the director of dra-

matics in collaboration with the instructors in the technical fields involved. Mr. Thomas, Mr. Hennessy, Mr. Batchelder, Mr. Nulsen, and others.

Elective by permission only. Laboratory and conference periods. ½ to 1 cr. (Registration for this course is to be completed during the registration period.)

ART

The courses in art offered by several departments within the university are here grouped for the convenience of students who wish to elect work in this field of study.

Students desiring to extend their major programs with courses in art should consult Professor G. R. Thomas of the department of architecture.

HISTORY AND APPRECIATION OF ART

ARCHITECTURAL COMPOSITION. See ARCHITECTURE 9. Mr. Perreton.

DOMESTIC ARCHITECTURE. See ARCHITECTURE 14. Mr. Huddleston.

ELEMENTS OF ARCHITECTURE. See Architecture 2. Mr. Perreton.

HOME BUILDING AND FURNISHING. See HOME ECONOMICS 31-32. Miss Mitcham.

HISTORIC COSTUME AND DESIGN. See HOME ECONOMICS 7, 8. Miss Moulton.

HISTORY OF EUROPEAN ARCHITECTURE. See ARCHITECTURE 5-6. Mr. Perreton.

HISTORY OF AMERICAN ARCHITECTURE. See ARCHITECTURE 7. Mr. Perreton.

INTRODUCTION TO THE ARTS. See ARCHITECTURE 47-48. Mr. Thomas.

THE SIGNIFICANCE OF ARCHITECTURE. See ARCHITECTURE 4. Mr. Huddleston.

PRACTICE OF ART

HANDICRAFTS. See HOME ECONOMICS 9, 10. Miss Bowen.

ARCHITECTURAL DESIGN. See ARCHITECTURE 26. Mr. Perreton.

ELEMENTARY LANDSCAPE GARDENING. See HORTICULTURE 28. Mr. Clapp.

ELEMENTARY PHOTOGRAPHY. See PHOTOGRAPHY 1, (1). Mr. Nasvik.

FLORAL ARRANGEMENT. See HORTICULTURE 38. Mr. Clapp.

FORGE SHOP. See MECHANICAL ENGINEERING S13 (S13). Mr. O'Connell.

FREEHAND DRAWING. See ARCHITECTURE 37. Mr. Thomas.

FREEHAND DRAWING. See ARCHITECTURE 38. Mr. Thomas.

FREEHAND DRAWING. See ARCHITECTURE 39-40. Mr. Thomas.

ADVANCED FREEHAND DRAWING. See ARCHITECTURE 45, 46. Mr. Thomas.

SHADES, SHADOWS AND PERSPECTIVE. See ARCHITECTURE 24. Mr. Thomas.

Water Color and Modeling. See Architecture 41-42. Mr. Thomas.

Pottery. See Home Economics 11, 12. Mr. Scheier.

Pottery. See Home Economics 13, 14. Mr. Scheier.

Stagecraft. See Architecture 49 (49). Messrs. Thomas, Hennessy, Batchelder, Nulsen, and others.

Wood Work. See Mechanical Engineering S3 (S3). Mr. Batchelder.

Wood Shop. See Mechanical Engineering S6. Mr. Batchelder.

For courses in music, dramatic art, and dancing, see departments of music, English, physical education for women and physical education for men.

The committee on fine arts will promote on the campus exhibitions and lectures treating the arts, also organized visits to nearby museums and points of interest. Published lists of these visits are available. The following are a few of the art centers within a convenient radius of Durham: Addison Gallery of American Art, Currier Gallery of Art, Museum of Fine Art of Bowdoin College, and several excellent museums and galleries in Boston, including the Boston Museum of Fine Arts, the Gardner Museum, and the Fogg Museum at Harvard University.

BIOLOGY

C. Floyd Jackson, *Professor;* Lawrence W. Slanetz, *Associate Professor;* Albion R. Hodgdon, *Associate Professor;* Edythe T. Richardson, *Assistant Professor;* Marian E. Mills, *Assistant Professor;* Stuart Dunn, *Assistant Professor;* W. Robert Eadie, *Assistant Professor;* Herbert E. Warfel, *Assistant Professor;* Charles G. Dobrovolny, *Assistant Professor;* M. C. Richards, *Assistant Professor;* Paul E. Schaefer, *Assistant Professor;* Eleanor L. Sheehan, *Instructor;* H. Gilbert Crecelius, *Instructor;* Erma L. Andrews, *Assistant;* Raymond Haringa, *Graduate Assistant;* Richard H. Stroud, *Graduate Assistant;* Arthur F. Howe, *Graduate Assistant;* William K. Babel, *Graduate Assistant*

Biology

1, (2), (1), 2. Man and the Living World. This is a basic course dealing with the elements of human biology. The chief theme of the course is man's relation to the living world and the nature of that world of which man forms a part. Biology 1, (1) deals with the nature and characteristics of plants and their relations to man. Biology 2, (2) deals with the nature and characteristics of animals and their relation to man. This course meets the biological science requirements of the College of Liberal Arts. Students electing Biology (2) the first semester will elect Biology (1) the second semester. Mr. Jackson, Mr. Hodgdon, Miss Mills, Mrs. Richardson, Mr. Eadie, Miss Sheehan, Mr. Schaefer, Miss Andrews.

Freshman course. 3 lec. or rec.; 1 lab.; 4 cr.

Biology-Education (bi-ed) 91. Problems in the Teaching of High School Biology. The objectives and methods of teaching high school biology. The selection and organization of subject matter, the use of visual aids, the setting up of aquaria and other class projects will be stressed. Mr. Schaefer.

Prereq: See page 212. 3 rec.; 3 cr.

Education-Biology (ed-bi) 93, 94. Supervised Teaching in High School Biology. See page 214.

Bacteriology

Mr. Slanetz, *In Charge*

1. General Bacteriology. Principles of bacteriology; methods for the isolation, cultivation and identification of bacteria and other microorganisms; morphology, physiology and classification of bacteria, and their relationships to agriculture, industry, sanitation and infectious diseases. Mr. Slanetz, Mr. Crecelius.

Prereq.: Chemistry 1-2 or equivalent. 2 lec.; 2 lab.; 4 cr.

2. Applied Bacteriology. Important pathogenic bacteria, bacteriological and serological methods for the classification of bacteria and diagnosis of disease. Methods of testing disinfectants. The bacteriology of soil, water, sewage, milk and food products. Mr. Slanetz, Mr. Crecelius.

Prereq.: Bacteriology 1. 2 lec. or rec.; 2 lab.; 4 cr.

3. Elements of Microbiology. Lectures and recitations or laboratory demonstrations on the nature and characteristics of bacteria, viruses, yeast and molds; the relationships of these microörganisms to agriculture, industry, sanitation and infectious diseases. For students who, as part of their cultural training, desire some knowledge of microbes and their rôle in everyday life. Mr. Slanetz.

Elective for junior and senior students only. 3 lec. or rec.; 3 cr.

6. Agricultural and Soil Bacteriology. Study of important soil bacteria and their rôle in soil fertility; characteristics of bacteria and viruses causing plant disease. Mr. Crecelius.

Prereq.: Bacteriology 1. 3 lec.; 1 lab.; 4 cr.

51. Pathogenic Bacteriology and Serology. The morphological, cultural, biochemical and serological characteristics of pathogenic microörganisms. Practical serological technique for disease diagnosis and identification of bacteria. Mr. Crecelius.

Prereq.: Bacteriology 2. 2 lec.; 2 lab.; 4 cr.

55, 56. Advanced Bacteriology. Special problems, depending upon the training and desire of the student. Elective only upon consultation. Mr. Slanetz, Mr. Crecelius.

Prereq.: Bacteriology 2 and chemistry 53 and 54 or their equivalent. Credits to be arranged.

57, 58. Bacteriology Seminar. Reports and discussions on current literature and recent developments in bacteriology. Mr. Slanetz.

Prereq.: Bacteriology 2 and consent of instructor. One 2-hour period; 1 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

Botany

Mr. Hodgdon, *In Charge*

1. General Botany. The seed-bearing plants with emphasis on structure and function of organs and economic products derived. Miss Mills, Mr. Hodgdon.

Required of freshmen in agriculture. Elective for others. 2 lec.; 2 lab.; 4 cr.

2. General Botany. A general survey of entire plant kingdom with emphasis on development, reproduction and evolutionary trends. Miss Mills, Mr. Hodgdon.

Prereq.: Botany 1. Elective for any student. 2 lec.; 2 lab.; 4 cr.

3. Plant Anatomy and Cytology. The anatomy of seed plants as revealed by free-hand and sliding microtome sections and simple staining. A brief review of cell structure as shown by cytological methods. Mr. Dunn.

Prereq.: Biology 1 or Botany 1. 2 lab.; 2 cr. (Formerly given as 3, *Plant Histology.*)

4. Plant Physiology. Structure and properties of the cell; absorption and movement of water; metabolism; growth and irritability. Mr. Dunn.

Prereq.: Biology 1 or Botany 1, and one year of chemistry. 2 lec.; 2 lab.; 4 cr.

6. Systematic Botany. The study of our native flora; the scientific naming of plants, and the identification of plants by the use of keys and standard floras. The important plant families will be studied and their evolutionary, relationship will be stressed. Mr. Hodgdon.

Prereq.: Biology 1 or Botany 1. 1 lec.; 2 lab.; 3 cr.

51. Plant Pathology. The nature of disease in plants, the etiology, symptomatology, and classification of plant diseases. Mr. Richards.

Prereq.: One year of biology or Botany 1 and 2. 1 lec.; 2 lab.; 3 cr.

52. Principles of Plant Disease Control. Studies in the principles of plant disease control, exclusion, eradication, protection, and immunization; and in the specific, practical methods used to control plant diseases. Mr. Richards.

Prereq.: One year of biology or Botany 1 and 2. 1 lec.; 2 lab.; 3 cr.

53, 54. Advanced Botany. The subject matter will depend upon the training and desire of the student. Elective only upon consultation with head of department.

Credits and instructors to be arranged.

55. Advanced Systematic Botany. The principles of plant classification and the laws governing the naming of plants; an analysis of the great systems of classification; an appraisal of the more important plant families. Problems will be assigned involving field work, library study, and use of the herbarium. Mr. Hodgdon.

Prereq.: Biology 1 or Botany 1 and Botany 6, or permission of instructor. Occasional lectures, laboratory work, field trips. 4 cr.

Zoölogy

Mr. Jackson, *In Charge*

3, 4. Hygiene and Sanitation. The principles of health preservation; hygiene of digestion, muscular hygiene, neural hygiene, and other important physiological processes affecting health. A study of food, water, and general sanitation, and the control of bacterial disease. Mr. Dobrovolny.

Prereq.: Biology 1, 2. 3 lec. or rec.; 3 cr.

5, 6. Organic Evolution. The various problems of evolution and their relation to human life. Evidence of man's origin based on anatomical, embryonic and paleontological data.

Prereq.: Junior standing and Biology 1, 2. 3 lec. or rec.; 3 cr. (Not offered in 1942–43.)

15-16. Comparative Anatomy of the Vertebrates. A basic course for pre-medical students and zoölogy majors dealing with the anatomy of the vertebrates, and illustrating the evolution of the organs and systems of the mammal. Includes a study of fundamental principles of vertebrate zoölogy. Selected vertebrate types dissected in the laboratory. Mr. Eadie.

Prereq.: Biology 1, 2. 2 lec.; 2 lab.; 4 cr.

17, 18. Human Anatomy and Physiology. The structure and function of the human body, with a detailed study of the different systems. Collateral readings, written reports and conferences. Mrs. Richardson.

Prereq.: Biology 1, 2. 3 lec.; 3 cr.

Advanced Courses

53. Histology. This course gives the students a familiarity with the microscopical anatomy of the principal tissues and organs of vertebrates. Adapted to the needs of the general students and those intending to study medicine. Mr. Dobrovolny.

Prereq.: Biology 1, 2 and one year of zoölogy and permission of the instructor. 2 lec.; 2 lab.; 4 cr. (Formerly given as first semester course, 53-54, *Histology and Development.*)

54. Embryology. A study of the fundamental principles of development. The origin of the individual and the developmental process from the egg to the formation of the body and the establishment of the principal organs and systems. The laboratory work includes a study of type forms of embryos. Mr. Dobrovolny.

Prereq.: Biology 1, 2 and one year of zoölogy. 2 lec.; 2 lab.; 4 cr. (Formerly given as second semester course 53-54, *Histology and Development.*)

55. Invertebrate Zoölogy. A survey of the major invertebrate groups with special emphasis on the anatomy and physiology of free-living forms. The evolution of the various phyla and their ecological relationships will be considered. Miss Sheehan.

Prereq.: One year's work in biology and permission of the instructor. 2 lec.; 2 lab.; 4 cr. (Not open to students who have had Zoölogy 51, 52.)

56. Parasitology. An introductory course concerned with some of the more important parasites causing diseases of man and animals. Living materials will be used as far as possible for study in the laboratory. Mr. Dobrovolny.

Prereq.: One year's work in biology and permission of the instructor. 2 lec.; 2 lab.; 4 cr.

57-58. Laboratory Technique. A general laboratory course in methods used in preparation of zoölogical material; microscopic slides, mounting embryos, making serial sections, etc. Will be adapted to individual needs as far as possible. Mr. Dobrovolny.

Prereq.: Permission of the instructor. 1 lec.; 2 lab.; 3 cr.

59-60. Advanced Physiology. Human physiology with special emphasis on nutrition, circulation, respiration, excretion and secretion. Lectures, assigned topics and laboratory experiments. Mrs. Richardson.

Prereq.: Biology 1, 2 and one year of zoölogy. 3 lec. or rec.; 3 cr. (3 lec. or rec.; 1 lab.; 4 cr., by permission of the instructor.)

61-62. Heredity and Variation. A detailed study of the cell, including morphology, the chemical and physical nature of protoplasm, mitosis, meiosis, syngamy, and related phenomena leading up to the physical basis of inheritance and the study of Mendel's laws, the expression and interaction of the genes, linkage, sex and its inheritance, the inheritance of quantitative characters, and the types and causes of variations. Mrs. Richardson.

Prereq.: Biology 1, 2 and one year of zoölogy. 3 lec. or rec.; 1 lab.; 4 cr. (Given in alternate years; offered in 1942–43.)

63, 64. Neurology. A comparative study of the nervous systems of the lower animals and a detailed practical study of the morphology,

physiology, and histology of the human nervous system. Mrs. Richardson.

Prereq.: Biology 1, 2 and one year of zoölogy. 3 lec. or rec.; 1 lab.; 4 cr. (Given in alternate years; not offered in 1942–43.)

71, 72. Biology and Taxonomy of the Vertebrates. The habits, habitat, life history, and economic importance of vertebrate animals with emphasis on identification. Field methods and technique will be considered. A basic course for students interested in fish and game management, for forestry students, and teachers of biology. Mr. Jackson and Mr. Eadie.

Prereq.: Permission of the instructor. 3 lec. or rec.; 1 lab.; 4 cr.

95. Limnology. The aquatic life of fresh water ponds and streams with special reference to economically important food and game fishes, adapted primarily for students who are interested in fish and game management, wild life conservation and in teaching of biology. Mr. Warfel.

Prereq.: Permission of the instructor. 1 conference; assigned laboratory work; 4 cr.

96. Problems of Conservation Research. Open to advanced students or those who show unusual promise in the field of research. Problems in all phases of conservation work and specifically in applied chemistry, zoölogy, ecology, genetics, limnology and silviculture. Nature of problems to be determined by the background and interests of the individual student. Mr. Warfel.

Prereq.: Permission of the instructor. 1 conference; 2 lab.; 4 cr.

97, 98. Special Problems and Seminar. Seminar discussions on current zoölogical literature conducted each week. Advanced students may elect a special problem provided they present a detailed outline of the subject and can furnish adequate proof of their ability to carry it out with equipment available. Mr. Warfel and other members of the staff.

Prereq.: Permission of the instructor. Graduate or undergraduate credit. 1–4 cr.

SERVICE COURSES

48. General Zoölogy. The principles of animal life, with special emphasis on human anatomy and physiology; the general principles of physiology, embryology and genetics as applied to various forms of animals. Mr. Schaefer.

Required of sophomores in agriculture. Open only to students in agriculture. 3 lec.; 3 cr.

49. Genetics. The physical basis of inheritance; laws governing

Mendelian inheritance, and their application to plant and animal breeding. Mrs. Richardson.

For agricultural students. 2 lec. or rec.; 2 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

CHEMISTRY AND CHEMICAL ENGINEERING

HAROLD A. IDDLES, *Professor;* OSWALD T. ZIMMERMAN, *Professor;* MELVIN M. SMITH, *Associate Professor;* JAMES A. FUNKHOUSER, *Associate Professor;* ALBERT F. DAGGETT, *Associate Professor;* EDWARD R. ATKINSON, *Assistant Professor;* JOHN L. TORGESEN, *Instructor;* WILFRED K. WILSON, *Instructor;* DAVID H. CHADWICK, *Assistant;* JOHN C. ROWELL, *Assistant;* HOWARD L. WILSON, *Graduate Assistant;* C. RICHARD MORGAN, *Graduate Assistant;* ROBERT E. BREEN, *Graduate Assistant;* MYRON J. ROSEN, *Graduate Assistant.*

BREAKAGE. A breakage deposit is required in certain laboratory courses, from which the actual breakage is deducted. The deposit receipt must be presented to the instructor at the first class meeting.

1-2. GENERAL CHEMISTRY. A broad course in elementary chemistry with many lecture demonstrations and some laboratory practice. Topics of interest to the professional student and of general interest are presented. Messrs. Smith, Atkinson, Wilson and assistants.

Elective for liberal arts students. Required of freshmen in agriculture, and sophomores in home economics. 2 lec.; 1 rec.; 1 lab.; 4 cr.

3-4. GENERAL CHEMISTRY. The fundamental laws and conceptions of chemistry, including a study of the non-metals and metals and their compounds. The theoretical principles are illustrated by many lecture demonstrations, and the applications of chemistry in the professions are explained. Messrs. Iddles, Smith, Funkhouser, Torgesen and assistants.

Required of freshmen in technology, and of pre-medical and pre-dental students. Elective for students who plan to take further courses in the department of chemistry. Technology students will be sectioned on the basis of a placement examination taken during Freshman week. 2 lec.; 1 rec.; 1 lab.; 4 cr.

6. INORGANIC CHEMISTRY. A continuation of chemistry 3 covering the fundamental laws and conceptions of chemistry involved in a study of the non-metals and metals and their compounds. Facts and practical applications are given, and the principles are explained and illustrated by lecture demonstrations. Mr. Iddles, Mr. Smith and assistants.

Prereq.: Chemistry 3. Required of freshman majors in chemistry. 2 lec.; 1 rec.; 3 lab.; 6 cr.

11-12. SURVEY OF CHEMISTRY. Lectures and demonstrations on general chemistry, designed for the pursuit of chemistry as an element of

general culture rather than as professional training, and for a knowledge of the spirit of a branch of science on which much of our present-day civilization is based. Textbook: Findlay, The Spirit of Chemistry. Mr. Iddles.

Elective for sophomore, junior and senior students. 3 lec.; 3 cr.

21. Semi-micro Qualitative Analysis. The fundamental theories of solutions and colloids as applied to the reactions of qualitative analysis. As a means of illustrating the theory, problem work is required. The laboratory work uses the semi-micro technique and provides ample experience in the analysis of simple and complex mixtures. Mr. Rowell.

Prereq.: Chemistry 4 or 6. This course required of sophomores in chemistry; not an elective course. 2 lec.; 2 lab.; 4 cr. Deposit: Five dollars for the semester.

22. Quantitative Analysis. The theory and laboratory technique of the more common determinations of gravimetric and volumetric analysis. Emphasis on the solution of problems. A comprehensive study of the more common analytical methods. Mr. Daggett and assistants.

Prereq.: Chemistry 21. Required of sophomores in chemistry; elective for others. 2 lec.; 3 lab.; 5 cr. Deposit: Five dollars for the semester.

25, 26. Introductory Quantitative and Qualitative Analysis. First semester: The theory, problems and technique involved in some of the common procedures in both gravimetric and volumetric quantitative methods. Second semester: The theory and problems of qualitative analysis. The laboratory work is conducted on a semi-micro scale and presents the special methods of technique involved. For pre-medical and pre-dental students, as a preparation for various sciences and as a preparation for secondary school teaching. Mr. Rowell, Mr. Chadwick, and assistants.

Prereq.: Chemistry 4. Elective to the limit of laboratory space. 1 lec.; 2 lab.; 3 cr. Deposit: Ten dollars for the year.

31. Stoichiometry and Technical Quantitative Analysis. The laboratory portion provides sufficient experience to develop the skill and special technique necessary for the analysis of alloys, gaseous, liquid and solid fuels, gas mixtures, oils and lubricants. The lectures interpret the results of technical analyses and their application to the calculation of heat and material balances in industrial processes. Mr. Daggett.

Prereq.: Chemistry 22. Required of juniors in chemistry and chemical engineering; elective for others. 3 lec.; 2 lab.; 5 cr. Deposit: Five dollars for the semester.

47-48. Organic Chemistry. Lectures on the principal classes of organic compounds, aliphatic and aromatic, with emphasis on class reactions and structural theory. Laboratory exercises in the prepara-

tion and purification of a selected number of organic compounds; also the use of group reactions for the identification of organic substances in a systematic scheme of qualitative organic analysis. Mr. Iddles.

Prereq.: Chemistry 22. Required of juniors in chemistry and chemical engineering; not an elective course. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

51. Organic Chemistry. An intensive review of the methods of preparation and reactions of the principal classes of organic compounds. The review also includes a consideration of important individual substances within each class. Emphasis is placed on the working of assigned problems. Mr. Atkinson.

Prereq.: Chemistry 48 or 54. Required of seniors in chemistry. 3 lec.; 3 cr.

53-54. Organic Chemistry. Lectures on the chief divisions of organic chemistry, aliphatic and aromatic, with the needs of the pre-professional student in mind. A more detailed consideration of carbohydrates and proteins follows. The laboratory technique of organic chemical methods as illustrated in the preparation and purification of typical organic compounds. Mr. Funkhouser.

Prereq.: Chemistry 3-4, and 26 when possible. Elective for liberal arts students. Required of junior pre-medical and pre-dental students. Chemistry 53 alone does not meet the pre-medical or pre-dental requirements; a grade of "Incomplete" will appear on the student's record following the completion of Chemistry 53, and the grade in the course will be filed upon completion of Chemistry 54. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

55, 56. Theoretical Problems of Modern Organic Chemistry. The principles underlying the behavior of organic compounds. A discussion of valence leads to a study of the electron theory of organic chemistry, and this is used as a basis for subsequent discussions of unsaturation, tautomerism, free radicals, color and chemical constitution (including an abbreviated treatment of dyestuffs), polymerization and molecular rearrangements. The latter part of the course includes a study of alicyclic compounds, the physical methods used in investigations of organic compounds, and an extensive study of stereoisomerism. The historical background is emphasized. Mr. Atkinson.

Prereq.: Chemistry 48 or 54. Chemistry 56 required of seniors in chemistry. 3 lec.; 3 cr. (Credit may be arranged.)

62. Advanced Methods of Quantitative Analysis. The theory and technique of special and recently developed methods of analysis such as colorimetry, turbidimetry, potentiometry and spectrography.

Sufficient experience is obtained to allow the development of considerable skill in even the more complex methods. Mr. Daggett.

Prereq.: Chemistry 22. Required of juniors in chemistry; elective for others. 3 lec.; 2 lab.; 5 cr. Deposit: Five dollars for the semester. (Credit may be arranged.)

71-72. Unit Processes. The important inorganic and organic industrial chemical processes from the point of view of the basic chemical reactions and physical operations involved. Mr. Zimmerman.

Prereq.: Chemistry 22. Required of juniors in chemical engineering and seniors in chemistry. 2 lec.; 2 cr.

74-75. Unit Operations. The theory and practice of the fundamental chemical engineering unit operations, including flow of fluids, flow of heat, evaporation, distillation, drying, filtration, gas absorption, extraction, humidification and air conditioning, crystallization, crushing and grinding, and size separation. Mr. Zimmerman.

Prereq.: Chemistry 71, 83. Required of students in chemical engineering. 3 lec.; 3 cr.

76. Chemical Engineering Economics. The economic factors involved in industrial chemical processes and the application of economic balances to the design and selection of chemical engineering equipment. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 3 lec.; 3 cr.

77. Unit Operations Laboratory. Experiments based upon the unit operations are performed on typical chemical engineering equipment. Mr. Zimmerman.

Prereq.: Chemistry 74, 84. Required of seniors in chemical engineering. 3 lab.; 3 cr. Deposit: Five dollars for the semester.

78. Chemical Plant Design. The design and layout of chemical plants and equipment. The assigned problems are of a practical nature, such as the manufacture of some chemical product, and their solution will include the design or selection of all equipment and drawings of equipment, plant and layout. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 3 lab.; 3 cr.

79. Chemical Engineering Thermodynamics. A study of the fundamental laws of energy and their application to chemical engineering problems. Mr. Zimmerman.

Prereq.: Chemistry 84 and Chemistry 74. Required of seniors in chemical engineering. 2 lec.; 1 rec.; 3 cr.

80. Chemical Engineering Project. Each student selects a research problem which he carries out independently under faculty supervision. Intensive study in both the library and the laboratory and a

satisfactory thesis at the completion of the work are required. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 4 lab.; 5 cr. Deposit: Five dollars for the semester.

82. Pre-Medical and Pre-Dental Physical Chemistry. A brief review and survey of the more important fundamental topics of physical chemistry; thereafter, those topics of physical and theoretical chemistry which have application in the medical, biological, and agricultural sciences. Mr. Torgesen.

Prereq.: Chemistry 2, physics 2, 6, or 8, mathematics 6 or equivalent. 3 lec.; 3 cr.

83-84. Elementary Physical Chemistry. The properties of gases, liquids and solids; principles of thermodynamics and applications; solutions, ionic theory, chemical equilibria, thermochemistry, conductance and electromotive force; principles of kinetics and their application to reaction rates. The laboratory will include accurate measurements illustrating the principles studied in the lectures. Mr. Torgesen.

Prereq.: Chemistry 22, mathematics 18, physics 8. Required of juniors in chemistry and chemical engineering. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

85-86. Advanced Physical Chemistry. A complete review of elementary physical chemistry followed by a study of the structure and properties of matter. In the latter part of the course the subject matter will include radioactivity, atomic structure, crystal structure, and related topics. Mr. Daggett and Mr. Funkhouser.

Prereq.: Chemistry 84 or equivalent. 3 lec.; 3 cr.

87-88. Chemical Literature and Seminar. Instruction in the use of the chemical library. Problems which require the use of all types of chemical literature, not only for locating specific factual material but also for the purpose of carrying out detailed searches on the laboratory and economic phases of typical chemical problems, are assigned. In the seminar individual student reports on recent topics of interest in chemistry are given. Mr. Atkinson.

Prereq.: Chemistry 62 and Chemistry 48. Required of seniors in chemistry. 1 lec.; 1 cr.

89-90. Thesis. A thesis covering the related background and experimental observations of the year's investigation in some selected subject is required. Members of the staff.

For seniors in chemistry who have completed chemistry 48 and 62. 5 lab.; 5 cr. Deposit: Ten dollars for the year.

For courses primarily for graduate students, see catalog of the Graduate school.

CIVIL ENGINEERING

EDMOND W. BOWLER, *Professor;* RUSSELL R. SKELTON, *Associate Professor;* CHARLES O. DAWSON, *Assistant Professor;* DONALD W. VAN TUYL, *Graduate Assistant.*

2. SURVEYING. The theory and use of surveying instruments and methods, including measurement of angles, direction and distance, differential leveling, land surveying, note keeping, and calculations and plotting relating to traverses. Mr. Dawson.

Prereq.: Mathematics 5, 15 or mathematics 2 carried in parallel. Required of freshmen in civil engineering. 1 rec.; 2 lab.; 3 cr.

3-4. SURVEYING. Theory and use of surveying instruments and methods on plane, precise and topographic surveys, including: the use and adjustment of tapes, transits, levels, and plane tables, topographic mapping, solution of miscellaneous problems in topographic surveying, highway and railway curves, earthwork computations, observations and reduction of observations on the sun and polaris for latitude, time, and direction, profile leveling, city surveying, base line measurements, triangulation, and mapping programs in the United States. Some time is spent in the practice of the execution of topographic symbols, and lettering. A topographic survey of a small area is completed in the field by the transit and stadia method and a map of the same area is plotted in the drafting room. A topographic map of a small area is also made by the plane table method. Mr. Dawson.

Prereq.: Civil Engineering 2. Required of sophomores in civil engineering. Civil Engineering 3: 3 rec.; 3 lab.; 6 cr. Civil Engineering 4: 1 rec.; 2 lab.; 3 cr.

6. ROUTE SURVEYING. Theory and practice relating to preliminary and final location surveys for highways, railways and pipe lines. Theory and problems in earthwork, the mass diagram, grade lines, vertical curves, cross sectioning and slope stakes. A field survey is made to demonstrate the fundamentals of location. Mr. Skelton.

Prereq.: Civil Engineering 4 either in parallel or as a prerequisite. Required of sophomores in civil engineering. 1 rec.; 2 lab.; 3 cr.

7-8. SURVEYING. The theory and use of surveying instruments and methods on plane and topographic surveys, including the measurement of angles, measurement of direction and distance, differential leveling, calculations relating to traverses, observations and reduction of observations on the sun and polaris for direction. A topographic survey of a small area is made in the field and a topographic map of the same area is plotted in the drafting room. Mr. Dawson.

Prereq.: Mathematics 2, 6, 16 or 22. Required of sophomores in forestry and 7 required of seniors in Architecture. 2 lab.; 2 cr.

9, (9). SURVEYING. The theory and use of tape, level and transit in making plane surveys, computations and drafting exercises necessary to plot field notes, surveys for record, and the economics and use of surveys for all purposes. Mr. Dawson.

Prereq.: Mathematics 6 or 16. Required of sophomores in Electrical and Mechanical Engineering. 1 rec.; 1 lab.; 2 cr.

15. ENGINEERING MATERIALS. Methods of manufacture, physical properties and the application of the various materials used in engineering works, including timber, steel, stone, brick, cement, concrete and bituminous materials. Laboratory experiments and reports on the testing of cements and concrete specimens. Mr. Skelton.

Prereq.: Geol. 7 and mechanical engineering 9 either in parallel or as a prerequisite. 2 rec.; 1 lab.; 3 cr.

23. HYDRAULICS. Fundamental principles of hydrostatics and hydrokinetics: fluid pressures, hydraulic gauges and meters, flow through pipes, tubes, orifices and nozzles, flow over weirs, flow in open channels, and the dynamic action of jets and streams. Mr. Bowler.

Prereq.: Mechanical engineering 9, either in parallel or as a prerequisite. Required of seniors in electrical engineering. 2 rec.; 2 cr.

24. HYDRAULICS. Fundamental principles of hydrostatics and hydrokinetics: fluid pressure and fluid flow, hydraulic gauges and meters, fluid flow through pipes, tubes, orifices and nozzles, flow over weirs, flow in open channels, the dynamic action of jets and streams, and the theory of tangential and reaction turbines. Mr. Dawson.

Prereq.: Mechanical engineering 7. Required of juniors in mechanical engineering. 3 rec.; 3 cr.

27-28. THEORY OF STRUCTURES. The graphical and analytical methods of determining reactions, moments and shears in beams, girders and trusses under fixed and moving loads and the stresses in various structures including simple, subdivided and multiple trusses, portals, viaducts, cantilevers and three-hinged arches. The computation of deflections and the application of the method of least work to statically indeterminate structures. Mr. Bowler.

Prereq.: Mathematics 18, and mechanical engineering 9 and 10 as prerequisites or in parallel. Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

38. THESIS. The student selects a subject of engineering, scientific or commercial interest for investigation or design and presents his results as a thesis in which equal emphasis is placed upon composition and accuracy of subject-matter. Conferences each week for discussion of progress and for guidance in study. Departmental standards for form of presentation are strictly followed. Mr. Bowler, Mr. Skelton, Mr. Dawson.

Prereq.: English 41. Required of seniors in civil engineering. 1 conference each week; 2 cr.

41, 42, 43, 44. Student Chapter of the American Society of Civil Engineers. Junior and senior students in civil engineering are required to join the student chapter of the American Society of Civil Engineers. In addition to its ordinary life under the guidance of student officers, the chapter meets once a week under the direction of an instructor, when prepared addresses by the student members are presented. Mr. Bowler.

Required of juniors and seniors in civil engineering. No credit.

52. Hydraulics. Principles of hydrostatics and hydrokinetics, including the laws governing static pressures, the flow of water through orifices, tubes, nozzles, weirs, pipe lines and open channels, the dynamic action of jets and streams and fluid flow in pipes. Laboratory exercises in hydraulic machinery and in stream gaging. Mr. Bowler.

Prereq.: Mathematics 18. Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

61. Highway Engineering and Transportation. The economics of location and design of highways and city streets; methods of construction, maintenance and specifications governing the various types of surfaces; administration and financing of highway systems; special emphasis on highway transportation. Field location and the complete design of a section of highway are included. Mr. Skelton.

Prereq.: Civil engineering 4, 6 and 15. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

62. Soil Mechanics and Foundations. The principles underlying the behavior of various soils when subjected to structural loads. Problems and methods encountered in foundation design and construction, building codes and legal aspects of foundation construction, also test borings and other underground exploration methods. In the laboratory tests are made on various soils for classification, grain size, permeability and consolidation. Reports and typical problems are included. Mr. Skelton.

Prereq.: Civil engineering 65. Required of seniors in civil engineering. 2 lec.; 1 lab.; 3 cr.

63-64. Hydraulic and Sanitary Engineering. Precipitation, water losses, run-off, drainage areas, stream flow, water power estimates, hydraulic turbines, dams and waterways; the sources, quantity, quality and sanitary aspects of public water supplies; the methods of purification and distributing systems; the theory and problems of sewerage, the principles governing the disposal of sewage and the various methods of sewage treatment. Computations, reports and problems of design are included. Mr. Bowler.

Prereq.: Civil engineering 52. Required of seniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

65. Structural Design. Theory and problems relating to the design of steel and timber structures. A steel girder and steel roof truss

are completely designed and working drawings prepared. Individual parts of steel bridge trusses and buildings are studied and designed. Emphasis on economy of design, accuracy of results, clarity of vision and analytical thought. Mr. Skelton.

Prereq.: Civil engineering 28. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

66. Reinforced Concrete Structures. Theory and design of reinforced concrete structures, such as beams, slabs, columns, footings, retaining walls and small bridges. Problems relate to construction and to illustrations of the theory. Mr. Skelton.

Prereq.: Civil engineering 65. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

The department of civil engineering coöperates with the department of government in offering government 61, see page 226, a course intended to introduce the student to community planning. Mr. Dawson represents the department of civil engineering in sharing responsibility for this course.

For courses primarily for graduate students, see catalog of the Graduate school.

DAIRY HUSBANDRY

Kenneth S. Morrow, *Professor;* Herbert C. Moore, *Assistant Professor;* Harry A. Keener, *Instructor.*

6. Fundamentals of Dairying. A general survey of the dairy industry; the composition and properties of milk and other dairy products, dairy manufacturing processes, and market milk; the selection and judging of dairy cattle. Mr. Keener.

Required of sophomores in agriculture except those in animal husbandry and dairying. Paired with agronomy 4; one-half semester. 3 lec.; 1 lab.; 2 cr.

23. Dairy Cattle. Pure-bred dairy cattle; breed history; pedigrees; family lines and methods of outstanding breeders; the application of the principles of genetics to the improvement of dairy cattle; herd analysis. Mr. Morrow.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

27. Butter and Cheese. (1) The secretion and the chemical and physical properties of milk; pasteurization; cream ripening; starters; churning; organization and operation of factories. (2) The manufacturing and marketing of more important types of cheese. Mr. Moore.

Required of juniors in dairy husbandry. 1 lec.; 1 lab.; 2 cr.

29. Domestic Dairying. Nutritive value of milk; market milk, modified milk, certified milk, condensed milk, milk powder, fermented milk, butter, cheese, and ice cream. Laboratory exercises in the manufacture of dairy products. Mr. Moore.

Elective for juniors and seniors in home economics and liberal arts curriculums. 2 lec.; 1 lab.; 3 cr.

30. Dairy Bacteriology. The application of bacteriological principles to the production and processing of milk and other dairy products, involving methods of entrance of microörganisms, effects of their growth, and methods for their control. Mr. Moore.

Prereq.: Bacteriology 1. Required of juniors in dairy husbandry. 2 lec.; 2 lab.; 4 cr.

33, 34. Dairy Cattle and Dairy Products Judging. (1) Comparative judging of dairy cattle, using animals in the college herd and in near-by herds. (2) The various standards and grades of dairy products with practice in judging milk, butter, cheese, and ice cream.

Cattle judging is given first half of fall semester and last half of spring semester; products judging alternates with this schedule. Students interested in competing for judging teams should elect this course. Mr. Morrow, Mr. Moore.

Required of juniors in dairy husbandry. 1 lab.; 1 cr.

60. Dairy Seminar. Recent experiment station and other literature covering the field of dairying. Practice in looking up literature and in the preparation of oral and written reports. Mr. Morrow.

Required of seniors in dairy husbandry. Elective for other students. 1 lec.; 2 cr.

62. Advanced Dairy Science. Basic data, fundamental observations, and discussions of research contributing to the present status of the dairy industry. Mr. Moore.

Required of seniors in dairy husbandry. Elective for other students who have adequate preparation in chemistry and bacteriology. 2 lec.; 2 cr.

64. Milk Production. Feeding and management of dairy animals; calf feeding; raising young stock; feeding for economical milk production. Mr. Morrow.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

65. Market Milk. The producing, handling, and distributing of market and certified milk; dairy farm inspection; control of milk supply. Mr. Moore.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

66. Ice Cream. The making, handling and marketing of ice cream and ices. Mr. Moore.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

ECONOMICS AND ACCOUNTING

HARRY W. SMITH, *Professor;* ARTHUR W. JOHNSON, *Associate Professor;* NORMAN ALEXANDER, *Associate Professor;* RUTH J. WOODRUFF, *Associate Professor;* JOHN D. HAUSLEIN, *Assistant Professor;* CARROLL M. DEGLER, *Assistant Professor;* DORIS E. TYRRELL, *Assistant Professor;* *WARREN S. HUNSBERGER, *Assistant Professor;* WILLIAM T. PHILLIPS, *Assistant Professor;* HARLAN P. BRAMBLE, *Instructor;* OLGA CONON, *Instructor.*

ECONOMICS

1-2. PRINCIPLES OF ECONOMICS. The fundamental principles which explain the organization and operation of the economic system. Mr. Degler, Miss Woodruff, Mr. Phillips, and Mr. Bramble.

Required of business students. Majors in economics are expected to take this course. Elective for other sophomores, juniors and seniors. 3 lec. or rec.; 3 cr.

3. ECONOMIC AND COMMERCIAL DEVELOPMENT OF THE UNITED STATES. Mr. Smith, Miss Woodruff, and Mr. Bramble.

Required of business students. Elective for sophomores. 3 lec. or rec.; 3 cr.

4. ECONOMIC AND COMMERCIAL GEOGRAPHY. The economic aspects of geography. The sources and methods of production of the world's staple commodities. The influence of physical environment on economic activity. Miss Woodruff.

Required of business students. Elective for sophomores. 3 lec. or rec.; 3 cr.

5. ECONOMIC AND COMMERCIAL DEVELOPMENT OF EUROPE. Mr. Degler.

Elective for sophomores. 3 lec. or rec.; 3 cr. (Not given in 1942–43.)

10. TRANSPORTATION. Development and organization of transportation agencies. Mr. Smith.

Prereq.: Economics 2. 3 lec. or rec.; 3 cr.

21-22. COMMERCIAL LAW. The law of contracts, agency, sales, negotiable instruments, partnerships and corporations. Mr. Alexander.

Required of business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

24. MARKETING. The economics of the marketing functions, agencies, and special problems of marketing. Mr. Degler.

Prereq.: Open to students who have completed or are enrolled in Economics 2. Required of business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

* On leave to June 30, 1942, U. S. Navy.

47, 48. Economic History of the Working Classes. Mr. Smith. 1 lec. or rec.; 1 cr. (Not offered in 1942–43.)

51. Labor Problems. Historical background and present status of labor organizations and problems. Mr. Smith.

Prereq.: Economics 2. 3 lec. or rec.; 3 cr.

52. Public Finance. Theory and practice of public expenditures and collection of public revenues; problems and policies in financial administration, national, state, and local; taxation problems in the state of New Hampshire. Mr. Smith.

Prereq.: 12 semester credits in economics and consent of the instructor. 3 lec. or rec.; 3 cr.

53. Money and Banking. Theory and practice of money and banking. Mr. Phillips.

Prereq.: Economics 2. Required of business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

54. Advanced Money and Banking. Advanced monetary theory and some of the more practical aspects of modern banking. Mr. Phillips.

Prereq.: A satisfactory average in Economics 53. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

55. Corporations. Development and forms of business organization and combination. Mr. Degler.

Prereq.: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

56. Corporation Finance. Methods of financing corporate enterprise. Mr. Degler.

Prereq.: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

59, 60. Seminar in Current Economic Problems. Mr. Smith. Elective for seniors majoring in economics who have attained a satisfactory average in the department. Recitations and reports; 3 cr.

61. Public Regulation of Business. The federal control of business organizations and their activities with special reference to recent legislation affecting industry. Mr. Alexander.

Prereq.: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

63. International Economics. Theory of international trade, foreign exchange, balances of international payments, tariffs and protection; the economic aspects of international relations, with particular reference to modern problems and policies. Mr. Bramble.

Prereq.: Economics 2 and 4. 3 lec. or rec.; 3 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the

needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics. (*See page 280.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61 and 62.

For courses primarily for graduate students, see the catalog of the Graduate school.

Accounting

NOTE.—Students who have completed two or more years of bookkeeping in preparatory school will be permitted to register for intermediate accounting (3-4) upon passing an examination covering the material of elementary accounting (1-2).
Schedule the following courses as Acct. 1, etc.

1-2. ELEMENTARY ACCOUNTING. Basic principles and theory of accounting, with extensive practice in accounting problems of the single proprietorship and partnership types of business organization. Mr. Hauslein.

Required of business sophomores. Elective for other sophomores, juniors and seniors. 2 lec. or rec.; 2 lab.; 4 cr.

3-4. INTERMEDIATE ACCOUNTING. Continuing work in partnerships; a comprehensive study of corporation accounting; extensive practice work in handling problems of corporation accounting. Mr. Johnson and Mr. Hauslein.

Required of business juniors. Elective for students who have completed accounting 2 or its equivalent. See note above. 2 lec. or rec.; 2 lab.; 4 cr.

5-6. ADVANCED ACCOUNTING. Advanced theory of accounting and extensive practice in solving problems involved; the federal income tax law and the accounting procedure in connection therewith; practice in computing income tax returns. Mr. Johnson.

Elective for students who have completed accounting 4 or its equivalent. 2 lec. or rec.; 2 lab.; 4 cr.

7-8. COST ACCOUNTING. The relation of cost accounting to general accounting. The place of cost accounting in modern business. Types of cost systems and their application to particular lines of business. Careful analysis of methods of computing costs. Effect of recent federal legislation on cost accounting. Mr. Johnson.

Elective for students who have completed accounting 4 or its equivalent. 2 lec. or rec.; 2 lab.; 4 cr.

9-10. HOTEL ACCOUNTING. Theory and practice of keeping accounting and financial records for hotels. Mr. Johnson.

Prereq.: Accounting 1-2. Required of students in hotel administration. 2 lec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1942–43.)

SECRETARIAL STUDIES

Schedule the following courses as Sec. St. 1, etc.

1-2. SHORTHAND. Principles of Gregg shorthand with practice in transcribing from shorthand plates and class notes. Sec. St. 7-8 must either be taken in conjunction with this course or precede it. Miss Tyrrell.

Required of secretarial students. 5 rec.; 3 cr.

3-4. ADVANCED SHORTHAND. A review of fundamental principles, the building of shorthand vocabulary, practice in taking dictation at increasing rates of speed, and (in conjunction with Sec. St. 9-10) practice in developing skill and speed in transcription. Miss Tyrrell.

Prereq.: Sec. St. 2, or the equivalent. Required of secretarial students. 5 rec.; 3 cr.

5, (5). PERSONAL USE TYPEWRITING. Practice in acquiring correct typing techniques, arranging outlines, notes, themes, bibliographies, and simple tabulations. Open to any student who does not know how to typewrite. Miss Conon.

5 lab.; 1 cr.

27. TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations, and simple manuscripts. This course is to be taken instead of Sec. St. 7 by secretarial students who have had Sec. St. 5 or the equivalent. Miss Tyrrell.

Required of secretarial students who have had Sec. St. 5 or the equivalent. 5 lab.; 1 cr.

7-8. TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations and simple manuscripts. Miss Conon.

Required of secretarial students. 5 lab.; 2 cr.

9-10. ADVANCED TYPEWRITING. Practice in tabulating and in writing business letters, legal papers, and various business forms; and (in conjunction with Sec. St. 3-4) practice in transcribing shorthand notes. Miss Tyrrell.

Prereq.: Sec. St. 8, or the equivalent. Required of secretarial students. 5 lab.; 2 cr.

11. FILING. Various alphabetic, numeric, and geographic subject-matter systems of correspondence filing; cross reference; follow-up methods; filing supplies and equipment; practice in filing. Miss Conon.

Prereq.: Sec. St. 8. Required of secretarial students. 3 rec. or lec.; 2 cr.

13. Office Machines. Duplicating methods; practice in typing master copies and stencils, and in operating a gelatin duplicator, a mimeograph, and a mimeoscope; practice in machine transcription; and an introduction to adding and calculating machines. Miss Conon.

Prereq.: Sec. St. 8. Required of secretarial students. 5 lab.; 2 cr.

17-18. Secretarial Office Procedure and Practice. First semester, discussion of secretarial duties and traits; problems in the discharge of various duties; and problems in office management. Second semester, 144 hours of practice secretarial work in business offices. Miss Tyrrell.

This course must be taken in conjunction with Sec. St. 3-4 and Sec. St. 9-10, or following these courses. Required of secretarial students. 3 rec.; 3 cr.

EDUCATION

A. Monroe Stowe, *Professor;* Harlan M. Bisbee, *Associate Professor;* Adolph G. Ekdahl, *Associate Professor of Psychology;* Everett B. Sackett, *Associate Professor;* Herbert A. Carroll, *Associate Professor, Psychology;* Howard R. Jones, *Assistant Professor;* I. N. Thut, *Assistant Professor.*

Helen F. McLaughlin, *Professor (Home Economics-Education)*; John S. Walsh, *Associate Professor (Latin-Education)*; Carl Lundholm, *Associate Professor (Physical Education)*; Margaret R. Hoban, *Assistant Professor (Physical Education)*; Harry D. Berg, *Assistant Professor (History-Education)*; Björnar Bergethen, *Assistant Professor (Music-Education)*; John A. Floyd, *Assistant Professor (French-Education)*; Harold I. Leavitt, *Assistant Professor (General Science)*; *Earl H. Little, *Instructor (Agriculture-Education)*; Robert H. Grant, *Assistant Professor (English-Education)*; Shelby A. Mitcham, *Assistant Professor (Home Economics-Education)*; Paul E. Schaefer, *Assistant Professor (Biology-Education)*; Donald M. Perkins, *Instructor (Mathematics-Education).*

COURSES IN EDUCATION

42. Psychological Principles of Secondary Education. The purpose of this second semester course in educational psychology is to help students acquire an appreciative understanding of adolescents and their educational needs and of the most effective ways of meeting those needs. Mr. Carroll, Mr. Jones, Mr. Thut.

Prereq.: Psychology 11 (formerly education 11) or 31. Open to sophomores. Required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

* Representing the state department of education in the administration of the Smith-Hughes Act.

45, (45). New Hampshire State Program of Studies and School Law. The aims and purposes, the plan of organization and administration of the secondary school as outlined in the New Hampshire state program of studies and school law. Mr. Bisbee.

Open to juniors and seniors. Preparatory for the state examinations in secondary program and in school law. 2 rec.; 2 cr.

51-52. Social Principles of Secondary Education. The educationally significant aspects and needs of modern democratic society. The organization, functions, curriculums and outstanding problems of American institutions of secondary education. Mr. Stowe.

Prereq.: Education 42. Required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

61, (61). Principles and Problems of Teaching in the Secondary School. (1) Secondary school objectives and the objectives in the teaching of secondary school subjects; (2) principles of teaching and of directing learning incorporated in teaching which meets the needs of high school students and attains the objectives of the secondary school; (3) secondary school tests and the ways in which teachers are endeavoring to ascertain the extent to which their objectives are being attained; (4) class management, the purpose of which is to insure conditions favorable to the attainment of the objectives of the secondary school. Mr. Bisbee, Mr. Thut.

Prereq.: Education 42. Required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

65. Educational Tests and Measurements. The nature of measurement. The development of the testing movement and its significance to the teacher. Classification and evaluation of tests. Standardized tests in subject-matter fields. The construction of tests including feasible procedures and writing everyday tests in classroom practice. Diagnosis and prognosis of pupils' aptitudes, achievements, attitudes, and interests, with particular emphasis upon the administration and interpretation of group intelligence tests. Mr. Carroll.

Prereq.: Education 42 or Psychology 31. 3 lec.; 3 cr.

75. Character Education in the Schools. Environmental factors which exert an important influence upon pupils of adolescent and preadolescent age; the development of wholesome ideals, attitudes, habits, personality and character traits; direct and indirect methods of character development through school subjects, co-curricular and extra-curricular activities. Mr. Bisbee.

Open to seniors who have satisfactorily completed education 42. 2 rec.; 2 cr.

76. Philosophy of Education. The fundamental concepts and ultimate objectives of education, current educational doctrines and con-

troversies, changes in educational procedures, historic background and philosophical implications. Mr. Bisbee.

Prereq.: Education 51-52. 3 rec.; 3 cr.

COURSES IN PROBLEMS IN THE TEACHING OF HIGH SCHOOL SUBJECTS

* The following courses are devoted to a study of problems of objectives, selection and organization of subject-matter, teaching and testing techniques and classroom management in the teaching of the respective subjects. To be admitted into one of these courses the student must have completed with a grade of at least 75 the course in principles and problems of teaching in secondary schools (education 61) and in addition the courses in the subject and related subjects designated as prerequisites to the respective courses in this group. A student desiring to be considered for supervised teaching must complete with a grade of at least 75 one of these courses in the subject in which he hopes to do supervised teaching. The satisfactory completion of two of these courses is required of students completing the university teacher-preparation program.

AGRICULTURE-EDUCATION (AG-ED) 92. PROBLEMS IN THE TEACHING OF HIGH SCHOOL AGRICULTURE. Mr. Little.

Required of seniors taking the agricultural teacher-preparation curriculum, and open only to those students. 3 lec.; 3 cr.

BIOLOGY-EDUCATION (BI-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL BIOLOGY. (3 cr.) Mr. Schaefer.

ENGLISH-EDUCATION (ENG-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL ENGLISH. (3 cr.) Mr. Grant.

FRENCH-EDUCATION (FR-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL FRENCH. (3 cr.) Mr. Floyd.

GENERAL SCIENCE-EDUCATION (GS-ED) 91. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE (3 cr.) Mr. Leavitt.

HISTORY-EDUCATION (HIST-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HISTORY. (3 cr.) Mr. Berg.

HOME ECONOMICS-EDUCATION (HE-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. (3 cr.) Mrs. McLaughlin.

LATIN-EDUCATION (LAT-ED) 91, 92. PROBLEMS IN THE TEACHING OF HIGH SCHOOL LATIN. (3 cr.) Mr. Walsh.

MATHEMATICS-EDUCATION (MATH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL MATHEMATICS. (3 cr.) Mr. Perkins.

MUSIC-EDUCATION (MU-ED) 91. PROBLEMS IN THE TEACHING OF ELEMENTARY SCHOOL MUSIC. (3 cr.) Mr. Bergethon. (Not offered in 1942–43.)

* For details concerning prerequisites and nature of these courses, see descriptions given under respective subject-matter departments.

MUSIC-EDUCATION (MU-ED) 92. PROBLEMS IN THE TEACHING OF SECONDARY SCHOOL MUSIC. (3 cr.) Mr. Bergethon. (Not offered in 1942–43.)

MUSIC-EDUCATION (MU-ED) 95. THE TEACHING OF STRINGED INSTRUMENTS. (2 cr.) Mr. Bergethon.

MUSIC-EDUCATION (MU-ED) 96. THE TEACHING OF WOODWIND INSTRUMENTS. (2 cr.) Mr. Bergethon.

MUSIC-EDUCATION (MU-ED) 97. THE TEACHING OF BRASS AND PERCUSSION INSTRUMENTS. (2 cr.) Mr. Bergethon.

PHYSICAL EDUCATION 23. PRINCIPLES OF PHYSICAL EDUCATION. (3 cr.) Mr. Lundholm.

PHYSICAL EDUCATION 24. ORGANIZED CAMPING. (3 cr.) Miss Hoban.

PHYSICAL EDUCATION 35. PLAY AND RECREATION. (3 cr.) Miss Hoban.

PHYSICAL EDUCATION 63, 64. THE THEORY AND COACHING OF SPORTS FOR WOMEN. (3 cr.) Miss Evans.

PHYSICAL EDUCATION 40. WINTER SPORTS. (2 cr.)

PHYSICAL EDUCATION 45. FOOTBALL. (2 cr.)

PHYSICAL EDUCATION 46. BASEBALL. (2 cr.)

PHYSICAL EDUCATION 47. TRACK AND FIELD ATHLETICS. (2 cr.)

PHYSICAL EDUCATION 48. BASKETBALL. (2 cr.)

PHYSICAL EDUCATION 61. PROBLEMS OF TEACHING IN PHYSICAL EDUCATION. (3 cr.)

PHYSICAL EDUCATION 65. ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. (3 cr.) Mr. Lundholm.

PHYSICAL EDUCATION (P-E) 91. PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. (3 cr.) Miss Hoban.

COURSES IN SUPERVISED TEACHING

This work is required in the teacher preparation program. It is open only to students whose applications are approved by the head of the department of education and the supervisor of student teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the office of the department of education on or before November 15 of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least 75 the following courses in education: 42, 51–52, and 61, and, with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision. The appli-

cant must also complete with a grade of at least 75 a course in the problems of teaching the subject in which he desires to do supervised teaching.

Students may be enrolled for from 6 to 10 credits of work in supervised teaching in the second semester of the academic year. Students registered in the College of Liberal Arts may count no more than nine semester credits in supervised teaching toward the fulfillment of the major requirements in education.

EDUCATION-AGRICULTURE (ED-AG) 93. SUPERVISED TEACHING IN HIGH SCHOOL AGRICULTURE. Each senior in the agricultural teacher preparation curriculum will spend at least ten weeks as an apprentice teacher in some agricultural high school selected by the state commissioner of education and the professor of education at the University of New Hampshire. This work will be in charge of the regular teacher of agriculture in the high school, and will be supervised by the instructor in agricultural education at the University of New Hampshire.

Required of seniors taking the agricultural teacher-preparation curriculum, and open only to those students.

EDUCATION-BIOLOGY (ED-BI) 93, 94. SUPERVISED TEACHING IN HIGH SCHOOL BIOLOGY. Prereq.: BI-ED 91.

EDUCATION-CHEMISTRY (ED-CH) 94. SUPERVISED TEACHING IN HIGH SCHOOL CHEMISTRY. Prereq.: CH-ED 91.

EDUCATION-CIVICS (ED-CIV) 94. SUPERVISED TEACHING IN HIGH SCHOOL CIVICS. Prereq.: HIST-ED 91.

EDUCATION-COMMERCE (ED-CS) 94. SUPERVISED TEACHING IN HIGH SCHOOL COMMERCIAL SUBJECTS.

EDUCATION-ECONOMICS (ED-ECON) 94. SUPERVISED TEACHING IN HIGH SCHOOL ECONOMICS. Prereq.: HIST.-ED 91

EDUCATION-ENGLISH (ED-ENG) 94. SUPERVISED TEACHING IN HIGH SCHOOL ENGLISH. Prereq.: ENG-ED 91.

EDUCATION-FRENCH (ED-FR) 94. SUPERVISED TEACHING IN HIGH SCHOOL FRENCH. Prereq.: FR-ED 91.

EDUCATION-GENERAL SCIENCE (ED-GS) 94. SUPERVISED TEACHING IN GENERAL SCIENCE. Prereq.: GS-ED 91.

EDUCATION-HISTORY (ED-HIST) 94. SUPERVISED TEACHING IN HIGH SCHOOL HISTORY. Prereq.: HIST-ED 91.

HOME ECONOMICS-EDUCATION (HE-ED) 94. SUPERVISED TEACHING IN HIGH SCHOOL HOME ECONOMICS. Prereq.: HE-ED 91.

EDUCATION-INDUSTRIAL ARTS (ED-IA) 94. SUPERVISED TEACHING IN HIGH SCHOOL INDUSTRIAL ARTS.

EDUCATION-LATIN (ED-LAT) 94. SUPERVISED TEACHING IN HIGH SCHOOL LATIN.

EDUCATION-MATHEMATICS (ED-MATH) 94. SUPERVISED TEACHING IN HIGH SCHOOL MATHEMATICS. Prereq.: MATH-ED 91.

EDUCATION-MUSIC (ED-MU) 93. SUPERVISED TEACHING IN ELEMENTARY SCHOOL MUSIC. Prereq.: MU-ED 91.

EDUCATION-MUSIC (ED-MU) 94. SUPERVISED TEACHING IN SECONDARY SCHOOL MUSIC. Prereq.: MU-ED 92.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 93, (93). DIRECTED TEACHING IN PHYSICAL EDUCATION.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 94. SUPERVISED TEACHING OF PHYSICAL EDUCATION IN THE FIELD.

EDUCATION-PHYSICS (ED-PH) 94. SUPERVISED TEACHING IN HIGH SCHOOL PHYSICS. Prereq.: PH-ED 91.

EDUCATION-SOCIOLOGY (ED-SOC) 94. SUPERVISED TEACHING IN HIGH SCHOOL SOCIOLOGY. Prereq.: HIST-ED 91.

COURSES IN PSYCHOLOGY

11, (11). PRINCIPLES OF HUMAN BEHAVIOR. The purpose of this course is to offer opportunities to students to acquire such appreciative understanding of important principles of human behavior and mental hygiene as will be helpful to them in controlling their own conduct efficiently, in living more wholesomely, and in influencing the conduct of others more intelligently. Mr. Stowe, Mr. Carroll, Mr. Jones, and Mr. Thut.

Open the first semester only to sophomores and the second semester only to freshmen or sophomores. Either this course or psychology 31 is required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

31, (31). GENERAL PSYCHOLOGY. A systematic study of essential facts and principles, including sensation and perception, attention, emotion, memory, habit, problem solving and motivation. Emphasis on the rôle of such activities in the individual's adjustment to everyday situations. Mr. Ekdahl and Mr. Carroll.

Open to sophomores who have satisfactorily completed psychology 11, or with approval of instructor, and to juniors and seniors without prerequisites. 3 lec. or rec.; 3 cr.

33. PSYCHOLOGY FOR STUDENTS OF COMMERCE. A study of the fundamental principles of psychology in a setting of direct application to personal and social problems met with in business. Illustrative materials will be drawn from various commercial fields, particularly from those of advertising and selling. Mr. Ekdahl.

Open to sophomores, juniors and seniors who have not completed psychology 31. 3 rec.; 3 cr.

34. Psychology of Advertising. The problems of advertising and selling. Proper methods of gaining attention and obtaining favorable action, appeal to universal desires and intelligent use of imagination and suggestion in arousing satisfaction and conviction. Proper mental equipment and training of the successful salesman. Scientific methods of evaluating and improving the effectiveness of campaigns and analyzing salesmanship methods. Mr. Ekdahl. (Not offered in 1942–43.)

36. Psychology of Personnel. The psychological aspects of personnel relations such as leadership and followership in business; evaluation of individual interests, aptitudes, achievements, and skills for occupational adjustment; the construction of rating scales and other personnel materials; techniques of job analysis; propaganda in industry and business; and other topics of concern to prospective employers and employees. Mr. Ekdahl.

Prereq.: Psychology 31 or 33, or Psychology 11 and Education 42. 3 rec.; 3 cr.

51. Psychology of Childhood. The mental processes and reactions of the normal child from early infancy to adolescence studied in order to obtain a comprehensive understanding of the development of the personality of the child. The origin of language and the acquisition of habits of thought and action considered together with the development of proper balance of emotional behavior. Of interest to students preparing to be teachers, homemakers, social workers, nurses, school psychologists, and clinicians. Mr. Carroll.

Prereq.: Psychology 11 or 31. 3 rec.; 3 cr.

52. Mental Hygiene. The problem individual from the point of view of prevention as well as of detection, diagnosis, and treatment. Ways and means of maintaining a normal mind and of re-educating the individual with distorted attitudes. Case studies presented for purposes of illustrating various types of mal-adjustment and suggestions offered for their improvement. Of interest to students preparing to be teachers, homemakers, social workers, physicians, nurses, school psychologists and clinicians. Mr. Ekdahl.

Prereq.: Psychology 11 or 31. 3 rec.; 3 cr.

53. Psychological Tests and Measurements. A survey of measurements of intelligence and mental aptitudes. Demonstrations and actual experience in the administration of both individual and group intelligence tests. Interpretations and suggested applications of test results. Mr. Carroll.

Prereq.: Psychology 31 or 11, and Education 42. 3 rec.; 3 cr.

54. Psychopathology. The distortion of the psychological functions of perception, association, memory, judgment and thinking, as found in the maladjusted individual in need of institutional care. The symp-

toms distinguishing the various types of mental defectiveness and the more common forms of the psychoses and neuroses presented to enable the student to recognize typical cases. Prophylaxis through the cultivation of healthful attitudes and activities in the home, school and community is emphasized. Mr. Ekdahl.

Prereq.: Psychology 31 or 11. 3 rec.; 3 cr.

57-58. PSYCHOLOGY LABORATORY. Standard experiments on sensation, perception, association, imagination, learning and reasoning. Emphasis on the development of the proper technique of psychological investigation. Mr. Ekdahl.

Prereq.: Psychology 31 or 11, or in conjunction with psychology 31. 1 lec.; 2 lab.; 3 cr.

66. COMPARATIVE PSYCHOLOGY. A survey of animal behavior from the one-celled organism up to and including the higher apes. Special emphasis will be given to the study of animal intelligence with opportunities for student participation in experiments on animal learning. Mr. Ekdahl.

Prereq.: One year of psychology. 3 lec. or rec.; 3 cr.

71, 72. SEMINAR IN PSYCHOLOGY. Mr. Ekdahl and Mr. Carroll.

Prereq.: Two years of psychology. Required of seniors majoring in psychology. 3 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

ELECTRICAL ENGINEERING

LEON W. HITCHCOCK, *Professor;* FREDERICK D. JACKSON, *Associate Professor;* WILLIAM B. NULSEN, *Assistant Professor.*

1-2. ELECTRICAL ENGINEERING. An elementary study of electrical circuits and machinery. Mr. Hitchcock.

Required of sophomores in electrical engineering. 1 rec.; 1 lab.; 2 cr.

7. ELECTRONICS AND COMMUNICATION. Principles of electronic apparatus; vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in electrical communication and in industry. Mr. Jackson.

Prereq.: Electrical engineering 33, 36, 38, or 54. Required of seniors in electrical engineering. 2 rec.; 1 lab.; 3 cr.

12. ILLUMINATION. Principles of illumination and photometry, light sources, residential and commercial lighting, street lighting, display and advertising lighting; wiring methods and calculations: National Electrical Code rules. Mr. Nulsen.

Required of seniors in electrical engineering. Elective for students who have completed electrical engineering 33, 36, or 38. 2 rec.; 2 cr.

13-14. Electrical Problems. Problems involving magnetic circuits, direct and alternating current circuits and machinery, batteries and meters. Mr. Hitchcock and Mr. Nulsen.

Required of juniors in electrical engineering. 2 rec.; 2 cr.

15, 16, 17, 18. Student Branch of the American Institute of Electrical Engineers. A student organization conducted in accordance with the by-laws of the institute with meetings given a place on the student's class schedule. Each student is required to present and discuss an approved subject. At times the meeting may take the form of a debate, an address by an outside lecturer or a motion picture of an instructive nature. Students in this course must become student members of the A.I.E.E. and must subscribe to a magazine selected by the department.

Required of juniors and seniors in electrical engineering. 1 rec.; no cr.

19, 20. Thesis. An original investigation offering opportunity for a better understanding of the fundamental principles and theory underlying electrical engineering practice and the design and operation of electrical equipment. Apparatus constructed as a part of a thesis becomes the property of the department. A statement of progress must be submitted at the conclusion of each scheduled period. A thesis may be discontinued at any time if there appears to be a lack of interest or ability, or for failure on the part of the student to report at the periods scheduled. Staff members.

Elective for seniors in electrical engineering. 3–5 lab.; 3–5 cr.

23-24. Laboratory. Operation and test of direct and alternating current equipment; laboratory practice and report presentation. Mr. Nulsen.

Prereq.: Electrical engineering 2. Required of juniors in electrical engineering. 1 lab.; 2 cr.

25. Laboratory. A continuation of electrical engineering 24. Mr. Nulsen.

Prereq.: Electrical engineering 24. Required of seniors in electrical engineering. 2 lab.; 4 cr.

31. Circuits and Appliances. Electrical circuits and appliances; types of wiring; National Electrical Code requirements; fuses and circuit breakers; meters; motors; signal circuits and telephones. Mr. Jackson.

Required of juniors and seniors in Architecture in alternate years beginning in 1941–42. Required of juniors and seniors in Hotel Administration in alternate years beginning in 1942–43. 2 rec.; 1 lab.; 3 cr.

33. Fundamentals of Electricity. Fundamentals of electric and magnetic circuits, storage batteries, direct and alternating current equipment, electronics. Mr. Nulsen.

Required of seniors in chemical engineering. 3 rec.; 1 lab.; 4 cr.

36. Practical Electricity. Direct and alternating current circuits, wiring for light and power, generation of electric power, motors, transformers, controlling devices. Mr. Hitchcock.

Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

37-38. Electrical Machinery. Direct and alternating current circuits, theory and characteristics of electric motors and generators, starting and control equipment. Mr. Jackson.

Required of juniors in mechanical engineering. 3 rec.; 1 lab.; 4 cr.

42. Principles and Applications of Electron Tubes. Vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in industry. Mr. Jackson.

Prereq.: Electrical engineering 33, 36, or 37. Elective for students not registered in the electrical engineering curriculum. 3 rec.; or 2 rec. and 1 lab.; 3 cr.

53-54. Electrical Engineering. Direct current generators, direct current motors, alternating current circuits, alternators and transformers. Mr. Nulsen and Mr. Jackson.

Prereq.: Physics 18, mathematics 18 and electrical engineering 2. Required of juniors in electrical engineering. 3 rec.; 3 cr.

55. Electrical Engineering. A continuation of electrical engineering 54. Induction motors, regulators, synchronous motors, converters and rectifiers; transmission line regulation, efficiency, insulation, lightning protection, sag and tension, etc. Mr. Hitchcock.

Prereq.: Electrical engineering 54. Required of seniors in electrical engineering. 3 rec.; 3 cr.

58. Radio and Wire Communication. Radio frequency amplifiers and oscillators and the principles of radiation. Principles of basic telephone apparatus and circuits. A detailed study of telephone transmission including inductive interference, equivalent networks, the infinite transmission line, the determination of line and cable characteristics, repeaters, filters, measurement of transmission characteristics. Mr. Jackson.

Prereq.: Electrical engineering 7. Elective for seniors in electrical engineering. 3 rec.; 1 lab.; 5 cr.

60. Advanced Circuit Theory. Application of mathematics to the solution of electrical circuit problems, including the use of differential equations, Heaviside's operators, and derivation of fundamental formulas and constants. Mr. Nulsen.

Prereq.: Electrical engineering 55. Elective for selected seniors in electrical engineering. 3 rec.; 1 lab.; 4 cr.

76. Laboratory. Advanced laboratory testing and special problems. The student works on problems of his own selection which have been outlined by him and have received approval. This may be in the form of a semester thesis, or a series of original experiments. Mr. Nulsen.

Prereq.: Electrical engineering 25. Elective for selected seniors in electrical engineering. 4 lab.; 4 cr.

78. Advanced Electronics Laboratory. Special radio problems, electron tube applications of a research nature, or studies and applications of audio frequency amplifier systems. Mr. Jackson.

Prereq.: Electrical engineering 7. Elective for technology seniors with permission of the department. Lab. and conferences; 4 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

ENGLISH

Harold H. Scudder, *Professor;* Alfred E. Richards, *Professor;* *William G. Hennessy, *Associate Professor;* Lucinda P. Smith, *Associate Professor;* †Carroll S. Towle, *Associate Professor;* Edmund A. Cortez, *Assistant Professor;* Paul S. Schoedinger, *Assistant Professor;* Robert G. Webster, *Assistant Professor;* Thomas H. McGrail, *Assistant Professor;* Sylvester H. Bingham, *Assistant Professor;* Robert H. Grant, *Assistant Professor;* John C. Sim, *Assistant Professor;* Ray E. Keesey, *Instructor;* Irene Gadbois, *Instructor.*

The courses in the department of English are open to students as follows:

Courses primarily open to freshmen: English 1, 3, 4, 43, 44, 6; (5).

Courses primarily open to sophomores: English 5, (5); 7, 8; 10; 11, 12; 14; 17, 18; 19; 20; 23, 24; 25, 26; 28; 32; 34; 35, (35); 36; 39, (39); 40.

Courses primarily open to juniors: All the preceding and the following: English 37, 38; 52; 53, 54; 55; 56; 57; 59; 61, 62; 63, 64; 65, 66.

Courses primarily open to seniors: All the preceding and the following: English 67, 68; 41, (41); 91.

1. Elementary Written and Oral English. Designed to meet the needs of each student in writing and in speech, this course will vary in content for each individual. All freshmen will be examined during Freshman week in this subject, and those whose attainments are found to be satisfactory will be released from instruction at once. Others will be grouped for individual instruction, and will be released individually from time to time as soon as their work is found to be satisfactory. Anyone may be recalled and reassigned to an instruction group at any time in his four years in college upon report of any member of the faculty

* On leave, second semester, 1941–42.
† On leave, first semester, 1941–42.

that the student's work in English is deficient. Besides written English, this subject covers correction for all freshmen found to be defective in speech. Six credits will be given for the work of the course at the close of the senior year, and no one not released from instruction at the end of the senior year may receive this credit, or be eligible for graduation. Mr. Webster, and a special staff.

Required of all freshmen. Conference schedules will be arranged by instructors. Members of upper classes may enroll if they desire, for assistance in writing or for speech correction. Apply to Mr. Webster.

3, 4. Survey of English Literature. A general survey of English literature from its beginnings to the year 1900. Lectures and recitations. Mr. Schoedinger.

Open to all students. 3 lec. or rec.; 3 cr.

5, (5). Play Production. This is not an elective, but a laboratory course in the public presentation of notable plays. Members of the course are elected by competitive trial, and credit is given both for acting and stage management. Credit is also given (but not in English) for technical assistance. (See Arch. 49.) Mr. Hennessy.

Open to all students except freshmen in the first semester. ½ to 3 cr.
This course cannot be used to satisfy major requirements.

6. Varsity Debating. Designed to give experience in public discussion and debate. Debates will be arranged with other college teams. Mr. Keesey.

Open to all students by permission of the instructor. No student may receive more than six credits in this course during his entire four years. 1–6 semester credits.
This course cannot be used to satisfy major requirements.

43, (43), 44, (44). Reading for Thought. Analysis of the thought and structure of three forms of writing: first semester: exposition; second semester: description and narration. Mr. Bingham.

Elective for all freshmen. Open to others upon permission of instructor. 3 lec. or rec.; 3 cr.

7, 8. Advanced Composition. Study and practice of writing brief impressions, essays, sketches, and narratives. Collateral readings; weekly conferences. English 7 should be taken before English 8, but the instructor will consider special cases. Mr. Towle.

Elective for sophomores, juniors, and seniors if not enrolled in English 1. 3 lec. or rec.; 3 cr.

9, 10. News Writing. A practical study of the preparation of articles for newspapers and magazines. It is for all whose vocations will demand frequent writing for publication, and it is a preparation in part for those who intend to take up newspaper work after graduation. It does not attempt to cover the entire field of journalism, but it surveys

briefly the social role and responsibilities of the newspaper and instructs the student in the duties of a reporter and affords constant practice in the writing of news stories. Mr. Sim.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

11, 12. Survey of American Literature. Lectures and extensive outside reading. Mr. Scudder.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

14. Mediaeval and Elizabethan Drama. A survey of the English drama, exclusive of Shakespeare, from its beginnings to the closing of the theatres (1642). Mr. McGrail.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

17-18. English Literature in the Seventeenth Century. Poetry and prose from Shakespeare and Bacon to Swift and Pope, omitting the drama and the works of Milton. The poetry of John Donne and his school; of Jonson, Herrick and the "Cavaliers"; of Denham, Waller and Dryden; of the followers of Spenser, etc. The prose of such writers as Izaak Walton, Bunyan, Sir Thomas Browne, Fuller, Taylor, and John Dryden. One hour of the week will be devoted to round-table discussion in small groups. Mr. Towle.

Elective for sophomores, juniors, and seniors. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1942–43.)

*19. English Grammar. The fundamentals of English grammar in order to provide an understanding of the language from a structural point of view. A thorough drill in the rules and classifications. Mrs. Smith.

Required for those who take English-education 91. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

20. Pope and His Age. The literature of the first half of the eighteenth century, with special reference to Pope, Swift, Addison, and Steele. Mr. Schoedinger.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

23-24. Victorian Prose. Prose of the nineteenth century. Particular attention is given during the first semester to the work of Coleridge, Lamb, Carlyle, Hazlitt, Newman, and Matthew Arnold; in the second semester to the work of John Ruskin as writer, art critic, and social reformer. Mr. Richards and Mr. Hennessy.

* This course was given in Manchester as an extra-mural offering, 1941–42, for 2 credits.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

25-26. Victorian Poetry. English poetry from 1830 to 1900, with special reference to Tennyson and Browning. Mr. Schoedinger.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

28. The Bible as Literature. A study of the various literary types found in the Bible, and a survey of the influence of the Bible on English literature. Mr. Richards.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

32. Modern British Poetry. A study of British poetry written since 1900. Mr. Towle.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

34. Modern American Poetry. A study of American poetry written since 1900. Mr. Towle.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

35, (35). Public Speaking. Practice in the use of time, change in pitch, emphasis, and inflection of voice; drills in articulation and pronunciation; exercises in posture and poise; extemporaneous speaking; a foundation course for prospective business men and teachers. Mr. Cortez and Mr. Keesey.

Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

36. Oral Reading. The art of reading from the page; expressive reading of lyrics and other types of literature; platform reading for entertainment; choric speaking. Students must secure permission of the instructor before enrolling for this course. Mr. Cortez.

Prereq.: English 35 or its equivalent. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr. (Not offered in 1942–43.)

37-38. Discussion and Debate. First semester: The proposition and its main issues; sources and tests of evidence; construction of the argumentative brief; principal laws of reasoning; principal fallacies of reasoning; practice debates. Second semester: Application and evaluation of principles of problem-solving in groups; forms of discussion and debate; parliamentary procedure. Subjects for research and debate will be selected from current events of state, national, and international importance. Mr. Keesey.

Prereq.: English 35 or its equivalent. Elective for juniors and seniors (and for sophomores by permission of the instructor). 3 rec.; 3 cr.

39, (39). Radio Speaking. Practice in presenting readings, sketches and prepared speeches, and in radio announcing; analysis of radio programs; elementary practice in the preparation and delivery of radio continuity. Outstanding students will be given opportunity to participate in broadcasts. Mr. Cortez.

Prereq.: Permission of the instructor. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

40. Stage Direction. A laboratory course in the fundamentals of acting, stage direction, and allied phases of play production. Designed to fit the needs of prospective teachers, particularly teachers of English. Mr. Hennessy.

Prereq.: The permission of the instructor. Elective for sophomores, juniors, and seniors. 3 lab.; 3 cr.

52. Introduction to Drama. A comprehensive survey of dramatic literature from the Greek drama to the present. Mr. Hennessy.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

53-54. Shakespeare's Plays. A study of the major histories, comedies, and tragedies. Shakespeare is interpreted as poet and as dramatist. Mr. Hennessy.

Elective for juniors, seniors, and graduate students. 3 lec; 3 cr.

55. Milton. Milton's minor poetry and the *Paradise Lost.* Consideration of the social, political and religious history of Milton's day. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

56. Johnson and His Circle. Boswell, Johnson and their time. Mr. Scudder.

Elective for juniors, and seniors and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

57. The English Novel in the Eighteenth Century. The novel from Defoe through the Gothic Romance. Lectures and constant outside reading. Mr. Schoedinger.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

59. The English Novel in the Nineteenth Century. The novel from Jane Austen to Thomas Hardy. Lectures, recitations, and constant reading. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr. (Given in alternate years; offered in 1942–43.)

61-62. The English Romantic Writers. The major writers of the early nineteenth century, such as Wordsworth, Coleridge, Byron, Lamb, Shelley, Hazlitt and Keats. Readings from the work of many minor writers, especially those of the late eighteenth century. One hour of the week devoted to round-table discussion with small groups. Mr. Towle.

Elective for juniors, seniors, and graduate students. 2 lec.; 1 rec.; 3 cr.

63, 64. Advanced American Literature. A series of studies in special fields, the subjects to be announced. In 1942–43 the subjects are: American Renaissance, and American Humor. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr.

65-66. Writing as an Art. The study and practice of forms of writing through an examination of the history of literary criticism. Reading of famous critical essays and of many contemporary opinions, correlated with practice writing of various types. Each student is allowed to spend much of his time with the type he finds most congenial. Collateral readings, with frequent class discussions and conferences. Mr. Towle.

Prereq.: English 7. Elective for juniors, seniors, and graduate students. 2 lec.; 1 rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

67-68. Early English and Chaucer. Chaucer's life and times, and a reading of most of his poetry. First semester: Old and Middle English grammar as an introduction to the language of Chaucer and a portion of *The Canterbury Tales*. Second semester: *Troilus and Cressida*, and *The Canterbury Tales*. Mr. Richards.

Elective for seniors and graduate students. 3 lec. or rec.; 3 cr.

SERVICE COURSES

41, (41). Expository Writing. Practice in the writing of reports and other papers pertaining to technical subjects; recommendation reports, progress reports, information reports; term papers or short theses; business letters of various types, such as letters of application, of complaint, and of sales. Mr. Webster.

Required of seniors in civil, electrical, and mechanical engineering, and of seniors in architecture and agriculture. 2 lec.; 2 cr.

English-Education (eng-ed) 91. Problems in the Teaching of High School English. The selection and organization of subject-matter, the most efficient methods of presenting this material, and the problems which arise within the wide field of the teaching of high school English. Mr. Grant.

Prereq.: Three years of English courses approved by the head of the department, and a demonstration of proficiency in English grammar, either by the satisfactory completion of English 19, or by examination. Recommended for all students who plan to teach English in secondary schools. Elective for students majoring in language, history, or education. 2 lec.; 1 lab.; 3 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

ENTOMOLOGY

WALTER C. O'KANE, *Professor;* JAMES G. CONKLIN, *Assistant Professor.*

NOTE.—Work in the department of entomology is largely individualized. So far as possible each student is permitted to choose the topics to which he will give special attention. This applies to each course offered by the department. Reference books are issued from the department library at any time. Lecture periods are occupied largely with discussion, in which students participate.

6. PRINCIPLES OF ECONOMIC ENTOMOLOGY. The relation of the structure and classification of insects to methods of insect control. The preparation and application of insecticides. Studies of the life history and control of insect pests. Mr. O'Kane, Mr. Conklin.

Required of freshmen in agriculture. Paired with agronomy 2; one half-semester. 3 lec.; 1 lab.; 2 cr.

51. INSECTS OF ORCHARD AND GARDEN. The application of methods of insect control of typical injurious species. Life histories and habits of important insect pests of orchard, garden and certain field crops. Adapted especially for students in horticulture and in general agriculture. Mr. Conklin.

Prereq.: Entomology 6. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; not offered in 1942–43.)

53. INSECTS OF DOMESTIC ANIMALS. The insect enemies of domestic livestock; the life histories, habits and means of control. Adapted especially for students in animal husbandry. Mr. Conklin.

Prereq.: Entomology 6. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; offered in 1942–43.)

54. HOUSEHOLD INSECTS, MEDICAL ENTOMOLOGY. The life histories, habits and means of control of insects of the household and of stored products. The relation of insects to disease. Mr. O'Kane, Mr. Conklin.

Recommended for sophomores in hotel administration. Elective for others. 1 lec.; 1 lab.; 2 cr.

56. Forest Insects. The life histories and habits of the more destructive forest insects and means of their control. Adapted especially for students in forestry. Mr. Conklin.

Prereq.: Entomology 6. Recommended for juniors in forestry. Elective for others. 1 lec.; 1 lab.; 2 cr.

57-58. Advanced Entomology. The anatomy and physiology of insects. The orders and families of insects. Mr. Conklin.

Open to students only by permission of the head of the department. Required of students specializing in entomology. 2 lec.; 2 lab.; 4 cr.

59-60. Advanced Economic Entomology. Problems involved in applied entomology. The literature of economic entomology. Investigational methods. Practice in arranging projects. Studies in the specialized phases of entomology. Mr. O'Kane, Mr. Conklin.

Open to students only by permission of head of department. Required of students specializing in entomology. Hours and credits to be arranged.

For courses primarily for graduate students see catalog of the Graduate school.

FORESTRY

Clark L. Stevens, *Professor;* Lewis C. Swain, *Assistant Professor;* William A. Medesy, *Instructor.*

1. Management of Farm Woodlands. Forestry principles as applied to the orderly handling of farm woodlots. Mr. Swain.

Required of sophomores in agriculture except foresters. Paired with poultry husbandry 5; one-half semester. 3 lec.; 1 lab.; 2 cr.

25, 26. Tree and Wood Identification. The characteristics of our native tree species, and the identification of trees in the field and from specimens. Additional practice in identifying northern species is given during summer camp. The uses of lumber, physical properties and identification of the commercially important woods. Personal ownership of a hand lens is required. Mr. Stevens, Mr. Swain.

Required of freshmen in forestry, elective for others. 2 lec.; 1 lab.; 3 cr.

27-28. Forest Mensuration. Practice in forest mapping; measurement of forest products; timber cruising; and studies of growth and yield of the commercial tree species of New England. The course is continued during summer camp. Personal ownership of a box compass is required. Mr. Medesy.

Required of juniors in forestry. Elective for others, with approval of the instructor. 1 lec.; 2 labs.; 3 cr.

29-30. Silviculture. The art of producing and tending a forest. Seed collection, storage and testing; nursery practice; forest plantations;

systems of natural regeneration; intermediate cuttings; discussion of silvicultural practice in the most important forest regions of the United States. Mr. Stevens.

Required of sophomores in forestry. Elective for others, with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

31, 32. Forest Utilization. Methods and costs of logging and milling in the chief lumber-producing regions of the United States; forest products, their manufacture, marketing and use; with special problems of the lumber business. Emphasis on New England conditions. Attendance on instruction trips is required for credit. Mr. Swain.

Required of certain juniors in forestry. Elective for others. 2 lec.; 1 lab.; 3 cr.

33. Forest Protection. Protection of the forest from such numerous enemies as fire, insects, fungi, and climatic extremes, also the construction of trails, roads, bridges, telephone lines and structures which are associated with protection. Mr. Swain.

Recommended elective for juniors in forestry. Elective for others, with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

34. Fish and Game Management. An introductory course designed to acquaint the student with the fundamental principles underlying the management of wild life as a forest crop. Mr. Stevens.

Recommended elective for juniors in forestry. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

35, 36. Thesis. Work to be arranged according to the needs of individual students. Mr. Stevens, Mr. Swain, Mr. Medesy.

Prereq.: Forestry 25, 26; 27-28; and 29-30. Required of certain juniors and seniors in forestry. 2 lec.; 2 or 3 cr.

37. Forest Recreation. An introductory course covering principles and methods for planning, designing and administering public and semi-public forest recreational areas. Mr. Medesy.

Prereq.: Permission of the instructor. Recommended elective for seniors in forestry. 2 lec.; 1 lab.; 3 cr.

39-40. Forest Management. Management of woodlots and large forest tracts for the purpose of gaining the largest immediate and future returns. Preparation of working plans to coördinate protection, improvement, and regeneration. Mr. Medesy.

Prereq.: Forestry 25, 26; 27-28; 29-30; 31, 32. Required of seniors in forestry. 2 lec.; 2 lab.; 4 cr.

41. Practical Fish and Game Management. Given only at summer camp. Projects are worked out on the university forest at Passaconaway, N. H., and on a near-by game management area conducted by the United States Forest service. Mr. Stevens and others.

Prereq.: Forestry 29 and 34. Elective for juniors in forestry. Forty-five hours per week for 2 weeks. 2 cr. Elective for other than forestry students who present satisfactory evidence of adequate preparation. Forty-five hours per week for 8 weeks. 10 cr.

42. TIMBER SURVEY. Given only at summer camp. Investigation of a large block of timberland on the White Mountain national forest. The student prepares a detailed timber survey report and a topographic map of the area. Mr. Medesy, Mr. Stevens, Mr. Swain.

Prereq.: Forestry 28, and civil engineering 7. Required of juniors in forestry. Forty hours per week for 6–8 weeks. 8–10 cr.

52. HISTORY OF FORESTRY. The history of forestry, its development and present status in different countries. Mr. Medesy.

Required of certain seniors in forestry. Elective for others with approval of the instructor. 3 lec.; 3 cr.

53. WILDLIFE RESEARCH PROBLEMS. Given only at summer camp. Special problems in connection with the management of fish and game. Open to advanced students or to those who show unusual promise in the field of research. Mr. Warfel and others.

Prereq.: Permission of the instructor. Forty-five hours per week for 8 weeks. 10 cr.

GEOLOGY

T. RALPH MEYERS, *Associate Professor;* DONALD H. CHAPMAN, *Associate Professor;* GLENN W. STEWART, *Instructor;* LORIN D. CLARK, *Graduate Assistant;* MELVIN L. HEINKE, *Graduate Assistant.*

1-2. PRINCIPLES OF GEOLOGY. The earth and its history. A consideration of land forms and a discussion of the materials and structures of the earth's crust. The interpretation of past geologic events, and their effect on the development of life forms. Laboratory study of various land forms of the United States by means of maps; of common minerals and rocks of the earth's crust; and of the more common fossils. Occasional field trips to nearby points of geologic interest. Messrs. Meyers, Chapman, and Stewart.

Freshman and sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

3. GEOGRAPHY OF THE WORLD. The earth as a planet and the processes which are at work modifying the appearance of its surface. The continents one by one (except North America), with emphasis placed on their physical aspects. Mr. Chapman.

This course cannot be used to satisfy science requirements.
Open to all students. 3 lec. or rec.; 3 cr.

4. GEOGRAPHY OF NORTH AMERICA. The North American continent and its physical aspects. The weather and climate of the continent.

The countries, treated regionally. Intensive study of the physical geography of New England. Mr. Chapman.

This course cannot be used to satisfy science requirements. Prereq.: Geology 3, or special permission. Open to all students. 3 lec. or rec.; 3 cr.

5. The Weather. The interpretation of atmospheric phenomena: the earth as a planet, the heating and circulation of the atmosphere, the seasons, and the nature and movement of the air masses which influence the weather of North America and particularly New England. Practical rules and methods of weather forecasting. Mr. Chapman.

This course cannot be used to satisfy science requirements. Elective for all students. 2 lec. or rec.; 2 cr.

6. Climates of the World. Elements of weather and climate. Classification of climates of the world. Examples and brief descriptions of major climatic types, and their influence on the life of man. Mr. Chapman.

This course cannot be used to satisfy science requirements. Elective for all students. 2 lec. or rec.; 2 cr.

7, (7). General Geology. A general introductory course in physical geology. The structures and materials of the earth's crust and the forces which have produced and altered them. Mr. Stewart.

Required of freshmen in chemistry and sophomores in civil engineering. Elective for other students in technology and for students in agriculture. Open to liberal arts students by permission only. 3 lec. or rec.; 3 cr.

11. Physiography. The forces producing the present aspect of the land surface, particularly that of New England. Special emphasis on the work of running water, glaciers, and marine agents. Field trips during the fall season. Mr. Chapman.

Prereq.: Geology 2. Sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

12. Structural Geology. An advanced study of the structures of the earth's crust and of the dynamics of their formation. Mountain systems, metamorphism, igneous structures, and theories of earth origin. Mr. Stewart.

Prereq.: One course in geology. Sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

51-52. Mineralogy. The minerals that make up the earth's crust: crystals; minerals and their determination by means of physical characteristics; and the aggregation of minerals to form rocks. Mr. Stewart.

Prereq.: One course in geology and one course in chemistry. 2 lec. or rec.; 1 lab.; 3 cr.

53, 54. Economic Geology. First semester: the types of coal and their occurrence in the United States; petroleum, the structures in which it is found, and the distribution and geology of oil fields, especially in

the United States; cement materials, building stones and related materials. Second semester: the metals, their ores, and the geology of important ore deposits. Mr. Meyers.

Prereq.: One year's work in geology. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

55-56. Paleontology. The history, development and morphology of the various groups of animals and, to a lesser extent, plants. as recorded by fossils found in the rocks of the earth's crust. Mr. Meyers.

Prereq.: One year's work in geology or zoölogy. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; not offered in 1942–43.)

57, 58. Geologic Problems. Special problems by means of conferences, assigned readings and field work, fitted to individual needs. Messrs. Meyers, Chapman, and Stewart.

Prereq.: Permission of the instructor. Credits to be arranged.

For courses primarily for graduate students, see the catalog of the Graduate school.

GOVERNMENT

Thorsten Kalijarvi, *Professor;* Lashley G. Harvey, *Assistant Professor;* David O. Walter, *Assistant Professor.*

The Bureau of Government Research

The Bureau of Government Research was established to meet the demands for information about governmental matters and to serve as a clearing house on problems of public administration. Its activities are instruction, research, and service, with emphasis upon public administration, including interne and in-service training. It is the headquarters of the New Hampshire Municipal Association.

1, 2. Citizenship. Present-day society; its political and social institutions; the development of an independent and informed attitude on vital political questions; problems of political expression, public opinion, the history, membership, structure and aims of organizations exerting political pressure, nominations and elections, political democracy, and the meaning of the state. Tolerance and the scientific approach toward views differing from the student's own will be stressed. First semester: man in his political environment, the principles which obtain therein, and the ways in which man is politically conditioned by physical, economic, and social forces. Second semester: current political situations and problems. Mr. Walter.

3 lec. or rec.; 3 cr.

3-4. American Government. The work and organization of federal, state and local government; political parties in the United States; the functional relations between the several branches of government, and

between political organizations and governmental policies. Mr. Harvey and Mr. Walter.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

5-6. European Governments. Their character, form and political practices; contemporary movements and developments; a comparison of the organs of governments as observed in action and evaluated in theory. Mr. Walter.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

7-8. International Law. The law governing the relations of states. Discussions supplemented by preparation of hypothetical cases. Mr. Kalijarvi.

Prereq.: One semester's work in government. Junior course. 3 lec. or rec.; 3 cr.

51. Constitutional Law. The case study of the constitutional development of the United States in terms of supreme, federal and state court decisions. Mr. Kalijarvi.

Prereq.: One year's work in government. Junior course. 3 lec. or rec.; 3 cr.

52. Introduction to Jurisprudence. Generalized principles of law and legal institutions. The law as an institution of social and political control. Mr. Kalijarvi.

Prereq.: Government 7-8 or 51, or Economics 21-22. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1941–42.)

55, 56. International Relations and World Government. The forms of international organizations and world politics. The rise of the modern nations and their relation to each other. The international world in which we live. Mr. Kalijarvi.

Prereq.: Two years' work in government. Open to seniors majoring in history and economics. 3 lec. or rec.; 3 cr.

58. Public Administration. The administration of modern states: administrative law; public relations; personnel; financial administration; governmental reporting; staff functions; public health; welfare; judicial administration; conservation of natural resources; government in business; government promotion of commerce and industry; and the construction of public works. Mr. Harvey.

Prereq.: Government 3-4 or open to juniors and seniors who are taking government 3-4. 3 lec. or 3 rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

61, (61). Community Planning. An introduction to the subject of community planning having as purposes: (1) the acquainting of the student with planning programs and what has been done in the field, and (2) the introduction of the student to specialized training for planning.

Detailed techniques and design will be avoided. The department of civil engineering will coöperate with the department of government in offering this course. In 1941–42 several specialists from other departments and the State Planning and Development commission assisted with special lectures. The specialists included Messrs. Perreton, Woodworth, Record, Bramble, and Mr. Clark of the State commission. Mr. Harvey, Mr. Dawson.

Elective for juniors, seniors, and graduate students. 3 rec.; 3 cr.

63, 64. SEMINAR. Papers on assigned topics, and reports under the guidance of the department head. Mr. Kalijarvi.

For majors who have completed two years' work in government and for graduate students in the social studies. Hours to be arranged. 1–4 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. *(See page 280.)*

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61–62.

11, (11). UNDERGRADUATE INTERNESHIPS. A limited number of upperclassmen will be appointed by application each semester, irrespective of their major, to serve in some department of the state or local government. The work will be in charge of the governmental department to which the student is appointed, and will be closely supervised by one of the University instructors. Details arranged individually in each case. Mr. Harvey.

Prereq.: Background work for the interneships, preferably substantial work in government, economics, accounting and sociology. For juniors and seniors. Not to exceed 16 credits. No more than 9 credits may be counted toward the completion of major requirements in government.

For courses primarily for graduate students, see the catalog of the Graduate school.

HISTORY

DONALD C. BABCOCK, *Professor;* HERBERT F. RUDD, *Professor of Philosophy;* ALLAN B. PARTRIDGE, *Assistant Professor;* PHILIP M. MARSTON, *Assistant Professor;* WILLIAM YALE, *Assistant Professor;* GIBSON R. JOHNSON, *Assistant Professor;* HARRY D. BERG, *Assistant Professor;* SCHUYLER E. CORNTHWAITE. *Graduate Assistant.*

In these courses an important place is given to historical reading carried on in the reference room. Often a considerable part of the work is written.

The statements below as to prerequisites, etc., are for liberal arts

students. Agriculture and technology students should consult the head of the department.

SURVEY COURSES

The following subject constitutes a basic course, required of all students in the College of Liberal Arts, to be taken in the freshman year.

1-2. INTRODUCTION TO CONTEMPORARY CIVILIZATION. Designed to provide a background of appreciation of the social significance of man's environment, the nature of man, the cultural heritage from the past, recognition of historical allusions in literature and conversation, and knowledge of the general sequence of historic events. Prehistoric and historic social evolution. The historic explanation of modern life and an appreciation of the problems of contemporary society. Messrs. Babcock, Berg, Johnson, Marston, Rudd, Yale.

4 lec. or rec.; 4 cr.

3-4. INTRODUCTION TO HUMAN HISTORY AND CONTEMPORARY CIVILIZATION. This is an experimental course, carrying on the work done in a special section of the preceding course, history 1-2. Its objective is primarily to produce personalities well oriented to the opportunities, the responsibilities, and above all, the signifiance of life in the modern social setting. Factual knowledge is therefore a secondary objective, though certainly a continuous one, including familiarity with (1) the past of the race, (2) all regions of the globe, (3) the outward aspects of social life—current affairs, citizenship, changing contemporary patterns, (4) inward aspects of human thought and the intellectual world. This, the second year, begins, historically, at about the year 1300. During much of the time the historic study is stopped in order to make intensive study of the social pattern of an entire age, or to observe the economic or political functioning of society in some well-defined period. Mr. Babcock.

Open only to students who have completed history 1–2 in a special section. 3 lec. or rec.; 3 cr. This course fulfills the requirement of Group III in the sophomore year.

COURSES FOR UPPERCLASSMEN

GROUP I. ANCIENT AND MEDIEVAL

MR. PARTRIDGE, *In general charge*

This group includes many of the customary well established courses in history. Students electing history courses with the general idea of rounding out their knowledge should include a selection from this group. History majors are expected to do a part of their work in it.

11. THE ANCIENT ORIENT. "Pre-historic" culture in the Near East: a consideration of the contributions of the many peoples and empires, from the Persian highlands to Egypt and the Aegean, in the making of the civilization handed on to the Mediterranean and western world. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

12. History of Greece. The deep-lying elements of western civilization as developed by Greek thought and action. Hellenic culture and its influence, including adequate attention to the period after the death of Alexander the Great. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

13, 14. History of Rome. The great completion and integration of ancient Mediterranean civilization under the headship of Rome. First semester: the preliterary foundations and legendary origins, the transition to republican life and institutions, and territorial expansion to the first century B.C. Second semester: the transition from republic to principate, and imperial and world affairs to the time of Justinian in 565. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

15, 16. Medieval History. First semester: the pageant of the Middle Ages from the period of the barbarian invasions to the first crusade. Second semester: to the 14th century. Designed: (1) to recapture the unique charm and social pattern of the Middle Ages, and (2) to interpret them as the source of modern times. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

17, 18. The Renaissance Period. The period when medieval institutions were both being consummated and fading away, and when a recovery of ancient factors in culture mingled with modern forces. The Renaissance as an artistic and broadly cultural revival, and as a forward movement introducing the modern period. In this and in the preceding course, considerable pictorial material is used. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

English History. (See history 21 which deals in part with the ancient and medieval periods.)

Far Eastern History. (See history 31.)

53, 54. Latin America. A study of the transplanting of Iberian civilization to the New World and an analysis of Latin American institutions from the colonial epoch to the present time. Mr. Partridge.

Given in 1941–42 as an extra-mural course at Manchester. 2 cr.

GROUP II. MODERN

Mr. Yale, *In general charge*

This group is planned in recognition of the practical importance and large place assigned by common practice to modern, recent and present day aspects of history.

19, 20. Modern European History. Studies of: (1) That most important phenomenon, the modern national state; (2) Western civilization as it reached a peak in Europe; (3) European expansion and world leadership, from the late 15th to the early 20th century. Eastern Europe, Asia, and Africa are referred to as backgrounds of the colonial movement. Because of its general importance, the course is open to all students; nevertheless, it is better, if possible, to study some of the earlier periods first. Mr. Yale.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

21, 22. History of England. The history of the British Isles from earliest times to the present and a consideration of the British Empire and Commonwealth of Nations. A parallel to English literature, a background to American political history, and a study of English culture and institutions in the democratic and social integration of the world. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

31, 32. History of East Asia. A survey of the growth of civilizations east of Persia, with special emphasis on China, Japan and their neighbors. This course deals with one-half of human history as well as with what is happening to one-half of mankind today. Mr. Rudd.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

61, 62. The World War. The 19th and 20th century background and causes of the first world war; the military, political, economic and social developments during the course of the war; the Paris peace conference. Mr. Yale.

Elective for juniors and seniors by permission of the instructor. 3 lec. or rec.; 3 cr.

63, 64. Recent World History. The world after the first world war, exclusive, for the most part, of American affairs, and stressing historical developments in Europe, the Near and Far East. Mr. Yale.

Elective for juniors and seniors by permission of the instructor. 3 lec. or rec.; 3 cr.

GROUP III. AMERICAN HISTORY

Mr. Marston, *In general charge*

This group addresses itself to (1) the responsibility of the American student to know his own country; (2) the widespread and well estab-

lished interest in New England's part in our history; (3) the developing Pan-American world; (4) some special aspects of American life and of 19th and 20th century American culture.

7-8. The United States from 1790 to 1900. The administration of Washington, the great forces of nationalism, expansion, democracy and sectionalism followed through the period of the world war. Reference to such aspects of our national life as literary, artistic, scientific and everyday life-ways, as well as the more usual political and economic events. Mr. Berg.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

9, 10. Latin-American History. The development and influence of Spanish and Portuguese culture as a wide-spread world force; the history of the Latin-American peoples; the relationship of Latin America and North America, particularly in view of recent growth in friendly and diplomatic relations. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

51-52. Colonial and Revolutionary American History. Colonial beginnings in America, national rivalries, the English colonies, the Revolution, and our national life to 1789. Early forms of Americanism in the making. Mr. Marston.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

59-60. Social and Cultural History of New England. From the settlements to the present. The material and intellectual aspects peculiar to New England's social and cultural life. The viewpoint is partly that of the antiquarian. Source materials figure considerably. It is assumed that the student is familiar with the general history of New England. Mr. Marston.

Elective for juniors and seniors who have taken the former history 7–8 or 51–52. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

65-66. Recent and Contemporary American History. Developments in American life since the opening of the twentieth century. The revolution in our material world and our outward life. The reaction of our individualism in the presence of new world ideologies, and the extent of its modification. A close-range observation of social history in the making. Current newspapers and periodicals will be used. Mr. Babcock. Rudd

Elective for juniors and seniors. 2 lec., rec., or discussions; 2 cr.

GROUP IV. HISTORY FROM AN EDUCATIONAL VIEWPOINT

Mr. Berg, *In general charge.*

67, 68. Historical Geography and Biography. Schools of thought in history are likely to be either environmental or personal; that is, either deterministic or voluntaristic. This course devotes a semester to each way of thinking, reviewed in the light of concrete data. New applications and methods of study and teaching will receive some attention, for example, the use of maps, and map-making for classrooms and the study of representative, as distinguished from great, persons. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or discussions; 2 cr. (Given in alternate years; offered in 1942–43.)

History-Education (hist-ed) 91. Problems in the Teaching of High School History. The purposes and objectives of teaching high school history; selection and organization of teaching material; teaching and testing techniques which may be advantageously used in teaching high school history and the other social studies; experiments in studying and teaching history. Mr. Berg.

Open to students who have satisfactorily completed history 7-8, government 1, 2, economics 1-2 or 3, 4, and education 61. 3 class meetings; 3 cr. For teachers primarily in service, one 2-hour rec.; 2 cr.

History-Education (hist-ed) 92. Practicum in the Teaching of History in High Schools.

Open only to students who have done cadet teaching in history or the social sciences. 3 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. (*See page 280.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61–62.

GROUP V. PHILOSOPHICAL

In general charge: For courses in philosophy and ethics, Mr. Rudd; *for courses in history of religion,* Mr. Johnson.

In the following group appear the offerings of the university in (1) philosophy, (2) ethics, (3) religious history, (4) philosophical aspects of history. The purpose throughout is the understanding of existence as an integrated whole.

23, 24. Historical Origins and Development of Christianity. The life, literature, religion and social development recorded in the Old Testament are studied as a cultural background. An investigation of the historic data existing about the life, character and teaching of Jesus. The growth and expansion of the Christian movement. Designed to

furnish students an opportunity to evaluate their own religious heritage in the light of contemporary thought, and to make special study of particular intellectual problems. Mr. Johnson.

Open to sophomores, juniors, and seniors. 3 lec. or discussions; 3 cr. (Given in alternate years; offered in 1942–43.)

25, 26. History of Religions. Religion as an historic force in society. The nature of religion, its origins, and early development treated in connection with primitive social history. A study of the principal religions of the world, special attention being given to Hinduism, Buddhism, Zoroastrianism, Confucianism and Mohammedanism. The history, literature, and philosophy of the oriental civilizations and cultures as a background. Mr. Johnson.

Open to sophomores, juniors, and seniors. 3 lec. or discussions; 3 cr. (Given in alternate years; not offered in 1942–43.)

Philosophy 71. The Art of Thinking: Logic. The many factors which determine the quality of human thinking as trustworthy or untrustworthy; the aids to better thinking practices. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

55, 56. The Philosophy of History. (1) Chronology and periodizing, and teaching methods having to do with dates. (2) Culture-history, including the historical side of everyday things. (3) The philosophy-of-history proper, or a study of some of the ways in which thoughtful persons have interpreted the nature of history as a whole. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or discussions; 2 cr. (Given in alternate years; not offered in 1942–43.)

Philosophy 81, 82. Historical Introduction to Philosophy. Two objectives are approached simultaneously: (1) an understanding of the succession of philosophic systems and the great philosophers who projected them, from the beginning of Greek philosophy to the present; (2) a systematic survey of the persistent problems of life as philosophers have seen them, and of the types of philosophic world-view that have contested for acceptance. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

Philosophy 83, 84. Ethics: Historical and Applied. First semester: Social values and ethical judgments as they have evolved in the history of man. Second semester: problems of conduct in this changing world including personal, vocational and institutional ethics. Mr. ~~Rudd.~~ Babcock

Elective for juniors and seniors. 3 lec. or rec.; ~~3~~ 2 cr. (Given in alternate years; offered in 1942–43.)

For courses primarily for graduate students, see the catalog of the Graduate school.

HOME ECONOMICS

HELEN F. MCLAUGHLIN, *Professor;* IRMA G. BOWEN, *Assistant Professor;* LUCILLE PEPOON, *Assistant Professor;* LILLIAN B. HUDON, *Instructor;* WILMA D. BREWER, *Instructor;* SHELBY MITCHAM, *Assistant Professor;* VERNA MOULTON, *Instructor;* MARTHA GARLAND, *Instructor;* EDWIN SCHEIER, *Instructor in Pottery.*

1, 2. HOMEMAKING. The various phases of homemaking and the vocational opportunities open to women. Mrs. McLaughlin.

Basic course for students majoring in home economics. Elective for other students. 3 lec. or rec., 3 cr.
Note: Further work than is offered in any of the following courses may be taken under home economics 47, (47), Projects in Home Economics. See page 236.

CLOTHING AND TEXTILES

3-4. CLOTHING SELECTION. The selection of suitable and becoming clothing. Textile materials from the point of view of the consumer. Care and renovation of clothing. Miss Moulton.

3 lec. or rec.; 3 cr.

5-6. CLOTHING CONSTRUCTION. Application of the principles of design and development of technique in garment construction. Section 1.—For those students having little or no experience in sewing. Section 2.—For those students who have had considerable experience in sewing. Admission to sections by permission of the instructor only. Miss Moulton.

2 lab.; 2 cr.

7, 8. HISTORIC COSTUME AND DESIGN. Costume changes from the primitive to the present, and something of the historical events that influenced such changes. Adaptation of period costume to modern use. Miss Moulton.

First semester: 3 lec. or rec.; 3 cr. Second semester: 1 lec.; 2 lab.; 1–3 cr.

9, 10. HANDICRAFTS. An experimental laboratory course offering opportunity to become acquainted with elementary work in handicrafts either as a hobby or for use in camps and playgrounds. There is a choice from among some fifteen or more crafts such as weaving, leather work, pyrography, chip carving, embroidery, Viennese stenciling, plastic marble, etc., which are conducted at the craft cottages; or one may register for the special section in wood carving. The craft cottage is open daily making some choice in laboratory hours possible. Students retaining finished products pay for the cost of the materials used.

Consultation with Miss Bowen should precede registration. Elective for sophomores, juniors and seniors. 1–3 cr.

11, 12. POTTERY. Design and construction. Laboratory practice in molding, casting, throwing, glazing and firing of household ware, architectural tiles, decorative ornament and figures. In coöperation with The League of New Hampshire Arts and Crafts. Students retaining finished products pay for the cost of materials used. Mr. Scheier.

Elective for sophomores, juniors, and seniors. 1–3 cr.

13, 14. POTTERY. A further study of design and construction, with special emphasis on decoration and the preparation and application of glazes. Students retaining finished products pay for the cost of materials used. Mr. Scheier.

Prereq.: Home economics 11, 12. Elective for sophomores, juniors, and seniors. 1–3 cr.

FOOD AND NUTRITION

15-16. FOODS. The composition, selection, preservation and preparation of foods; meal planning, preparation and service. A separate section is given for students in hotel administration. Miss Brewer.

Prereq. or parallel: Chemistry 1, 2. 1 lec.; 2 lab.; 3 cr.

17, 18. PROBLEMS IN ADVANCED FOODS. Selected problems in one or more of the phases of food study: tearoom management; experimental food study; advanced cookery; meal planning and service. Miss Brewer.

Prereq.: Home Economics 15–16. 1 lec.; 1 lab.; 2 cr.

19. DIET THERAPY. Problems in diet therapy. Readings in the current literature of nutrition. Miss Garland.

2–3 rec. and lab.; 2–3 cr. Registration for 3 credits required of institutional administration and hospital dietetics seniors. Elective for other students.

20. DIETETICS. Application of the principles of human nutrition to varying physiological, social, and economic conditions. Mrs. McLaughlin.

2 lec.; 1 lab.; 3 cr.

21, 22. ELEMENTARY MEAL SERVICE. Practical preparation and serving of healthful and attractive meals. Miss Brewer.

Elective for students not majoring in home economics. 2 lab.; 2 cr.

CHILD DEVELOPMENT

25-26. CHILD DEVELOPMENT. The physical development and care of the infant and child; mental, social and emotional development and guidance. Miss Pepoon.

Prereq. or parallel requirement: Psychology 11 or 51. 2 lec. or discussions; laboratory work with children in the play group; reference reading; 3 cr.

27, (27). Projects in Child Development. Principles of child guidance. Nursery school procedures and practice. Class discussion and supplementary projects based upon the special interests of the students involved.

Prereq.: Home economics 25-26. 2 lec. or discussions; laboratory in the play group; reference reading; 2–3 cr.

HOME MANAGEMENT

31-32. Home Building and Furnishing. The evolution of American housing from the early settlements to the present. The selection of a site, the planning, decorating and furnishing of a modern home. Miss Mitcham.

3 lec., rec. or conferences; 3 cr.

33, 34. Home Management. First semester: Management of money, time and energy in relationship to home living; procedures and use of equipment involved in the care of the home. Second semester: problems of the consumer as related to market practices, quality standards, evaluation of advertising and selection of commodities for the home. Miss Pepoon.

3 lec.; 3 cr.

35, (35). Home Management House. Participation in homemaking; planning, buying, and preparation of meals; care of the house; efficient work habits; problems of management. Nine weeks' residence in the home management house. Miss Pepoon.

Required of students in the home economics teacher preparation curriculum; elective for other students by permission of the head of the department. Class limited to six (four groups per year). 3 cr.

INSTITUTIONAL MANAGEMENT

41. Institutional Management. The organization, equipment, and management of typical institutions; the buying, planning, preparing and serving of meals for large groups. Field trips to study equipment and management. Miss Hudon.

3 lec. or rec.; 3 cr.

43–44. Institutional Practice. Practical experience in the kitchens and serving rooms of the university Commons. Miss Garland.

2 lab.; 2 cr.

46. Furniture and Textiles. Problems in the selection, care and use of furniture and textile materials for institutions. Required of hotel administration juniors and hospital dietetics seniors; elective for institutional administration juniors. Members of home economics staff.

3 rec.; 3 cr.

48. Field Work in Institutional Practice and Extension. Eight to ten weeks' residence and practical experience in an approved

hospital or other institution, or an extension group, supplemented by readings and conferences. Mrs. McLaughlin and Extension staff.

4–6 cr.

49-50. Quantity Cookery. Practical experience in large quantity cookery in the quantity cookery laboratory at the university Commons. Miss Garland.

Prereq.: Home economics 15–16. Required of hospital dietetics and institutional administration seniors and hotel administration juniors. 2 lab.; 2 cr.

HOME ECONOMICS EDUCATION

47, (47). Projects in Home Economics. Opportunity for students to work out projects supplementary to or in advance of other courses. Not more than 9 credits may be taken in this course. Members of home economics staff.

Conferences and assignments; reference readings; 1–3 cr.

Home Economics-Education (he-ed) 91. Problems in the Teaching of High School Home Economics. Miss Mitcham.

3 lec. or rec.; 3 cr.

Home Economics-Education (he-ed) 94. Supervised Teaching in High School Home Economics. Miss Mitcham.

Twelve weeks supervised teaching, 10 cr.

Home Economics Education (he-ed) 96. Seminar in the Teaching of High School Home Economics. Miss Mitcham.

Required of all students who have done supervised teaching. Four weeks' intensive work following period of supervised teaching. 3 cr.

For courses primarily for graduate students, see the catalog of the Graduate school, under the department of education.

HORTICULTURE

Albert F. Yeager, *Professor;* J. Raymond Hepler, *Associate Professor;* L. Phelps Latimer, *Assistant Professor;* William W. Smith, *Assistant Professor;* Henry S. Clapp, *Instructor;* W. D. Holley, *Instructor.*

1. General Horticulture. Fruits, vegetables, landscape gardening, and flowers are covered briefly with emphasis on the application of fundamental science to practices. Mr. Yeager.

Required of sophomores in agriculture. Paired with agricultural engineering 5; one half-semester. 3 lec.; 1 lab.; 2 cr.

13. Judging in Horticulture. A course designed to give the student sufficient information on the judging of fruits, vegetables, flowers, and products made from these materials so that he would be capable of judging a small show such as might be put on by a grange or community

club. This course is designed not only for horticultural students but for students who expect to be county agents or teachers. Mr. Latimer, Mr. Hepler, Mr. Holley.

Elective for any student. 2 lab.; 2 cr.

14. Elementary Vegetable Gardening. Garden soils; testing and planting seeds, selection of varieties with reference to New Hampshire conditions; construction and management of hotbeds and cold frames; fertilization, cultivation and irrigation of the garden. Mr. Hepler.

Required of vegetable majors; suitable as an elective for anyone wishing a general elementary course in vegetable gardening. 2 lec.; 1 lab.; 3 cr.

26-27. Ornamental Woody Plants. The identification and culture of trees, shrubs and vines and their use in landscape planting. Practice in pruning, transplanting and care. Mr. Clapp.

Required of horticulture students who do not elect horticulture 55 or 57. Elective for any student. 1 lec.; 2 lab.; 3 cr.

28. Elementary Landscape Gardening. Principles involved in ornamental and landscape gardening. Special attention given to beautifying the home surroundings. Mr. Clapp.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

38. Floral Arrangement. Instruction in the principles and theories of floral design and the use of flowers in the home, in halls, and churches; actual practice in floral arrangement. Flowers used in laboratory become the property of the student. A laboratory fee of $3.00 is charged. Mr. Clapp.

Elective for any student. Registration by permission of instructor. 1 lab., 1 cr.

39. Greenhouse Management. Modern methods of greenhouse work and the more important plants grown commercially under glass, including vegetables and flowers. Varieties, culture, marketing and enemies of greenhouse plants. Practical work in propagating, potting, watering plants, and ventilating greenhouses. The history and development of different types of greenhouses. Mr. Holley.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

40. Outdoor Floriculture. The art of growing flowers in the garden. The classification and culture of flowering annuals, herbaceous perennials, bulbs, and bedding plants. Field trips. Mr. Holley.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

44. Horticultural Practice. Seasonal practice work in fruit-growing, including pruning, grafting, planting, and spraying; or similar work with vegetables or ornamental plants. Two half-days each week

in the orchard, garden or greenhouses, and a one-hour meeting to discuss fundamental principles involved. Horticultural staff.

Prereq.: Horticulture 14, 28 or 40. Required of all majors qualified to take it. 1 lec.; 4 lab.; up to 5 cr. (NOTE.—By permission of the department, students who have had previous practical experience may substitute 5 semester credits of electives for this course.)

48, 49. BEEKEEPING. The life history and habits of honey bees and their adaptation to apiary conditions are given in the second semester, which should preferably precede the first. Laboratory work in the assembling and use of hives and hive fittings, and practice in handling bees. First semester: the principles and methods underlying the production of commercial crops of comb and extracted honey, with laboratory practice in the care and protection of bees during fall and winter, the extraction of honey and preparation for market of comb honey and wax. Mr. Hepler.

Elective for any student. 1 lec.; 1 lab.; 2 cr.

51, 52. ADVANCED HORTICULTURE. Subject matter in any phase of horticulture (with laboratory practice if desirable) to meet the needs of special students or groups of students. Horticultural staff.

Elective for juniors and seniors. Students must obtain permission to register from the head of the department. Hours and credits to be arranged.

53. POMOLOGY: ORCHARD FRUITS. Fundamental principles and experimental data and their applications to orchard problems such as establishing orchards, growth and rest periods, water requirements, soil management, pruning, fruit bud formation, fruit-setting pollination, thinning, and winter injury. Mr. Latimer.

Prereq.: Botany 1. Elective for juniors and seniors. 3 lec.; 3 cr.

54. POMOLOGY: SMALL FRUIT CULTURE. The culture and economic uses of the strawberry, raspberry, blackberry, blueberry, and grape. Each fruit is considered with relation to its history, propagation, planting, pruning, harvesting, marketing, insects and diseases, and domestic uses. Mr. Latimer.

Elective for any student. 2 lec.; 2 cr.

55. SYSTEMATIC SURVEY OF FRUITS. Important species of fruits and nuts of temperate regions and their botanical relationships. The history, distribution, and merits of each species, and the horticultural varieties developed from it. Mr. Latimer.

Prereq.: Botany 1. Elective for juniors and seniors. Required of seniors in horticulture who have not taken horticulture 57 or horticulture 26-27. 2 lec.; 2 cr. (Given in alternate years; offered in 1942–43.)

57. Systematic Survey of Vegetables. Important species of vegetables and culinary herbs and their botanical relationships. The history, distribution, and commercial merit of each species and the horticultural varieties developed from it. Mr. Hepler.

Elective for juniors and seniors. Required of seniors in horticulture who have not taken horticulture 53 or horticulture 26 and 27. 2 lec.; 2 cr. (Given in alternate years; not offered in 1942–43.)

61. Harvesting, Storing and Marketing. The handling of vegetable and fruit crops, technicalities of grading, agencies used and problems in storing, transporting and merchandising the crop, with laboratory practice in packing-house work. Mr. Smith.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

65. Commercial Vegetable Production. The management of commercial vegetable gardens. A study of the important vegetables and their culture including a comprehensive review of recent experimental work in the vegetable field. Mr. Hepler.

Prereq.: Horticulture 14. Required of horticulture students who do not elect horticulture 53 or horticulture 26 and 27. Elective for juniors and seniors. 2 lec.; 1 lab.; 3 cr.

91, 92. Horticulture Seminar. A review of recent horticultural literature and methods of investigational work. Students required to prepare and present papers on selected topics. Horticultural staff.

Required of seniors in horticulture. Other students must obtain permission to enroll. 1 lec.; 1 cr.

94. Plant Breeding. Application of the principles of genetics to practical plant breeding. Hybridization, chemical treatments, and selection as means of producing and improving varieties. Mr. Yeager.

Prereq.: Zoölogy 49. Elective for any student. 2 lec.; 2 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

HOTEL ADMINISTRATION

Raymond R. Starke, *Associate Professor.*

The courses listed below are given primarily for students in hotel administration. The department head acts as supervisor for students in this curriculum; office hours are maintained for purposes of consultation. Other students, not following the hotel administration curriculum, are invited to elect these courses with the permission of the instructor provided they have the proper prerequisites.

1. Orientation. Some time is utilized to accustom the students to methods used in local university work, in a treatment of the history and organization of the university, followed by the history of hospitality the

world over, particularly the development of the hotel business in the United States.

Required of freshmen in hotel administration. 2 lec.; 1 cr.

5. Hotel Operation. The problems of the hotel manager form the basis of work in this course. Some sections studied are the organization, personnel and work of departments, front office procedure, control of income and expenditure and overhead expenses incurred in establishing a hotel property. The point of view of the resort hotel man is constantly being compared with that of the metropolitan operator.

Required of juniors in hotel administration. Accounting 9-10 should precede or accompany this course. 3 lec. or rec.; 3 cr.

6. Hotel Public Relations. The relations of the hotel with the public, either as prospective or present guests; sales promotion media and advertising.

Elective for juniors and seniors in hotel administration. 2 lec. or rec.; 2 cr.

8. Front Office Procedure. The layout of the hotel office, the members of the staff and their relation to other staffs of the hotel. Equipment, and procedures of keeping guest accounts.

Elective for seniors in hotel administration. 1 class discussion; 1 cr. (Not offered in 1942–43.)

12. Financial Statements. A study of financial reports and statements directed towards costs and percentages in hotel operations. The work is based on the Uniform System of Accounts for hotels as recommended by the American Hotel association.

Prereq.: Accounting 10 or hotel administration 5. 2 lec. or rec.; 2 cr.

21, 22. Introductory Hotel Engineering. To give an engineering background with additional practical information, this course supplies much of the material of an elementary physics course with an added study of practical hotel problems, for example, common laundry practices and kitchen planning. A comprehensive laboratory accompanies the recitations and three or more inspection trips are made during the year.

Required of sophomores in hotel administration. 3 lec. or rec.; 1 lab.; 4 cr.

23. Stewarding. The management of the steward's department of a hotel, comprising the purchasing, storage, and issuing of foods, beverages and supplies with the proper records to keep in connection therewith. This course will be given by an experienced steward, brought to the campus for this express purpose.

Prereq.: none. 2 lec. (One afternoon on alternate weeks); 1 cr. (Not offered in 1942–43.)

40, 42, 44, 46. Lectures on Hotel Management. Delivered by representative and well known men in the hotel business and allied fields. All students in hotel administration should register for this course every year.

Hotel administration 40 elective for freshmen. Hotel administration 42, 44, 46 required of sophomores, juniors, and seniors respectively. 1 lec. and discussion period of 2 hours; 1 cr.

LANGUAGES

Clifford S. Parker, *Professor;* *John S. Walsh, *Associate Professor,* Julio Berzunza, *Assistant Professor;* Paul L. Grigaut, *Assistant Professor;* John A. Floyd, *Assistant Professor;* James T. Schoolcraft, Jr., *Assistant Professor;* Albert F. Buffington, *Assistant Professor;* Caroline Tozzer, *Teaching Fellow.*

GENERAL LANGUAGE AND LITERATURE

Languages 1, 2. Survey of Greek and Roman Literature. The masterpieces of Greek and Roman literature in translations. The environments, ideals and personalities of the great writers of antiquity and their contributions to the modern world. A cultural course for the general student unprepared to read the original languages but desiring acquaintance with this important subject-matter. A background course for majors in such subjects as English, history, Latin, or one of the modern languages and literatures. Continued in languages 51, 52. Mr. Walsh.

3 rec.; 3 cr.

Languages 51, 52. Survey of Modern European Literature. The Renaissance, classicism, romanticism and realism studied as international movements. Stress will be laid, not upon the details of each national literature, but upon the interdependence of the literatures of the various countries. Literature interpreted as a product of changing patterns of civilization and social ideas. Required reading in the original language or in translations. Conducted in English. Mr. Grigaut.

Prereq.: Junior, senior, or graduate standing. 3 rec.; 3 cr.

Languages 73-74. General Introduction to the Science of Language. An introduction to the science of linguistics. The origins of language; the languages of the world; phonology; morphology; syntax; semantics; etymology; language and writing; the science of comparative philology and its development; dialect divergence; the principles of linguistic change; race, culture, and language; the psychology of language. The course, though designed particularly for

* On leave, second semester, 1941-42.

majors in English or other languages, is open to all juniors, seniors, and graduate students. Mr. Buffington.

3 lec.; 3 cr.

FRENCH

(Freshmen will be assigned to French 1, French 3, or French 5, on the basis of their performance in the French placement examination in freshman week.)

1-2. ELEMENTARY FRENCH. Elements of French grammar, reading of simple prose, oral practice, dictation. The course will be sectioned for those entering with credit and without credit in high school French. Mr. Floyd, Miss Tozzer.

5 rec.; 4 cr.

3-4. INTERMEDIATE FRENCH. Review of most important rules of grammar; reading of a large amount of diversified French prose, partly in class, partly outside; oral practice. Principal objectives: (1) to give a solid foundation for work in French; (2) to increase the facility and accuracy of students' reading knowledge of French. Mr. Parker, Mr. Grigaut.

Prereq.: French 2 or its equivalent. 3 rec.; 3 cr.

5-6. FRENCH CIVILIZATION AND LITERATURE. The history of French civilization; careful study of a few masterpieces of French literature; rapid reading of numerous books outside of class; composition and oral practice. Principal objectives: (1) to study the history of French culture in its various aspects; (2) to increase students' ability to use and understand the French language; (3) to prepare for the study of French language and literature in more advanced courses. Mr. Parker, Mr. Grigaut.

Prereq.: French 4. 3 rec.; 3 cr.

11-12. FRENCH CLASSICISM. The period from 1600 to 1750, tracing the rise and development of the classical ideal in French literature; the masterpieces of the great writers of the age of Louis XIV; the decline and disintegration of classicism in the 18th century. Mr. Parker.

Prereq.: French 6. 3 rec.; 3 cr.

13-14. FRENCH COMPOSITION AND CONVERSATION. The use of written and spoken French taught by careful attention to pronunciation, composition and grammar. Especially valuable for students who wish to teach French. This course should be taken by every student desiring to obtain departmental recommendation for the teaching of French. Advance permission of instructor or head of department required. Mr. Floyd.

Prereq.: French 4 with grade of 75 or better; or French 6.
3 rec.; 3 cr.

53-54. FRENCH ROMANTICISM. The period from 1750 to 1850: J. J. Rousseau's work and influence; the important writers of the Romantic

school; analysis of the intermingling of romanticism and realism in the work of Balzac. Mr. Parker.

Prereq.: French 12. 3 rec.; 3 cr.

57-58. French Literature from 1850 to the Present. Realism and naturalism in the novel and drama, the Parnassian and symbolist schools in poetry, the psychological novels of Bourget, and the various schools and trends of the late 19th and early 20th centuries. Conducted largely in French. Mr. Grigaut.

Prereq.: French 12 or 54. 3 rec.; 3 cr.

61-62. French Grammar. A systematic study of French grammar in all its phases from elementary to highly advanced. Intended primarily for those preparing to teach French. Mr. Parker.

Prereq.: Junior, senior or graduate standing. 3 rec.; 3 cr.

63-64. French Literature and Civilization of the Middle Ages and the Renaissance. The various forms and masterpieces of French literature from the beginning to the year 1600, with consideration of their historical and social background. Recommended for seniors and graduate students. Mr. Parker.

Prereq.: French 12 or 54. 2 lec.; 2 cr.

French-Education (fr-ed) 91. Problems in the Teaching of French in the High School. The special objectives, methods, and problems of high school French. Open only to seniors and graduate students who are planning to teach. Visits to schools to observe the work of experienced teachers arranged. Students may be given opportunity to assist in the work of French 1-2. Mr. Floyd.

Prereq.: Permission of head of the department. 3 rec.; 3 cr.

92. Oral French. Accuracy and facility in the use of oral French will be attempted through the study of phonetics and the use of dictation, conversation, the phonograph, the dictaphone and other devices. Mr. Floyd.

Prereq.: French 14 or French-education 91. 2 rec.; 2 cr.

GERMAN

1-2. Elementary German. The fundamentals of German grammar as a necessary foundation for reading. Conversation, memory work, and the reading of a large amount of simplified prose. Mr. Schoolcraft, Mr. Buffington.

3 rec.; 3 cr.

3-4. Intermediate German. A continuation of elementary German. Reading and translation, review of grammar, conversation. Main emphasis is placed on the rapid reading of German to prepare students especially for courses in German literature and for the use of

German in other academic fields, such as English, history, and social science. Mr. Buffington.

Prereq.: German 2 or two years of high school German. 3 rec.; 3 cr.

5-6. Scientific German. For pre-medical students and majors in physics, chemistry, geology, forestry, agriculture, and engineering. To facilitate the reading of German scientific treatises. Mr. Schoolcraft.

Prereq.: German 2 or two years of high school German. 3 rec.; 3 cr.

11-12. German Literature from 1750 to the end of the Classical Period. Lectures, interpretations, collateral reading, and reports. The development of German literature during the epoch of the *Aufklärung* and the *Sturm und Drang* to the end of the classical period. Lessing, Goethe and Schiller chiefly studied. Mr. Schoolcraft.

Prereq.: German 4 or the equivalent. 3 class hours; 3 cr. (Not offered in 1942–43.)

13-14. German Conversation and Composition. Recommended for students who desire a fluent practical command of spoken and written German. Class discussions conducted in German. Opportunity for informal conversation, for discussion in German of topics prepared in advance, and for free German composition. Mr. Buffington.

Prereq.: German 4. 3 rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

53-54. German Romanticism. The revival of the historical and imaginative Middle Ages in the first half of the nineteenth century. Mr. Schoolcraft.

Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Given in alternate years; not offered in 1942–43.)

57-58. Modern German Literature. The development of German literature from 1832 to the present, with special emphasis on the novel and drama. Authors considered are Grillparzer, Hebbel, Ludwig, Keller, Meyer, Wagner, Hauptmann, Sudermann, Thomas Mann, Rilke, George and Schnitzler. Mr. Buffington.

Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Given in alternate years; not offered in 1942–43.)

63-64. History of German Literature. Its development from pagan to modern times. Representative works read in and out of class. The history of German civilization is taken up parallel with the history of literature. Mr. Schoolcraft.

Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Given in alternate years; offered in 1942–43.)

GREEK

1-2. Elementary Greek. Grammar, composition, translation. Mr. Walsh.

Prereq.: Permission of the instructor. 3 rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

LATIN

3-4. Intermediate Latin. A review of the first and second years' study of Latin grammar and vocabulary, followed by readings in poetry and prose. Primarily for students who have had no opportunity to continue the study of Latin in school beyond the second year. Mr. Walsh.

Prereq.: Two years of high school Latin. 3 rec.; 3 cr. Offered in 1942–43 if there is sufficient demand.

5-6. Latin Poetry. Selected poems of Catullus, Ovid, Phaedrus, Martial and the odes and epodes of Horace. Translations, lectures and study of Latin influence on English poetry. Mr. Walsh.

Prereq.: Latin 4, or three years of high school Latin. 3 rec.; 3 cr.

7-8. Latin Prose and Comedy. The plays of Plautus and Terence, Livy's History (Books I and II), and Pliny's Letters studied for their value as mirrors of the life and history of Rome as well as for their literary value. Mr. Walsh.

Prereq.: Latin 4. 3 rec.; 3 cr. (Not offered in 1942–43.)

51-52. Philosophy and Satire. Philosophy, religion, natural science and social theories of the Romans, as exemplified in the writings of Horace, Martial and Cicero. Mr. Walsh.

Prereq.: Latin 6. 3 rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

55-56. Literature and History. A comprehensive view of Latin literature of the Golden Age, particularly the works of Caesar, Cicero and Virgil. Literary value and historical content will be studied as well as such background of the history of Rome during the period as is necessary for the student or teacher of the classics. Mr. Walsh.

Prereq.: Latin 8. 3 rec.; 3 cr. (Given in alternate years; offered in 1942–43.)

Latin-Education (lat-ed) 91-92. Problems in the Teaching of High School Latin. The study of methods, objectives, and problems of teaching high school Latin will be carried on throughout the year concurrently with work in composition and conversation. Open to those who have taken or are taking another course in college Latin and recommended for prospective teachers of Latin.

3 rec.; 3 cr. (Formerly given as Latin 63-64.)

SPANISH

1-2. Elementary Spanish. Elements of Spanish grammar, reading of simple prose, oral practice, dictation. Mr. Berzunza, Mr. Floyd.
3 rec.; 3 cr.

3-4. Modern Spanish Prose and Poetry. Review of grammar, reading, composition, and conversation. A large part of the reading will be in the field of Latin-American literature and civilization. Mr. Berzunza.
Prereq.: Spanish 2 or its equivalent. Freshmen who offer two or more units of Spanish for admission to college may take this course. 3 rec.; 3 cr.

7-8. The Spanish Novel. Representative novelists of the modern period such as Fernán Caballero, Valera, Pérez, Galdós, Pardo Bazán and Palacio Valdés. In the latter part, Cervantes will be studied. Collateral reading, reports and lectures on the history of the novel. Mr. Berzunza.
Prereq.: Spanish 4. 3 rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

11-12. Spanish Drama. Dramas of Lope de Vega, Calderón, Echegaray, the Brothers Alvarez Quintero, Benavente and others. This course is carried on as far as possible in Spanish. Mr. Berzunza.
Prereq.: Spanish 4. 3 rec.; 3 cr. (Given in alternate years; not offered in 1942–43.)

13-14. Spanish Composition and Conversation. The use of written and spoken Spanish taught by careful attention to pronunciation, grammar and composition. While there will be some reading as a basis for conversation, the main stress will be laid on oral practice. Mr. Berzunza.
Prereq.: Spanish 4 or grade of 80 in Spanish 2. 3 rec.; 3 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

MATHEMATICS

Hermon L. Slobin, *Professor;* George N. Bauer, *Professor;* Marvin R. Solt, *Associate Professor;* Daniel C. Lewis, *Associate Professor;* Militiades S. Demos, *Assistant Professor;* William L. Kichline, *Assistant Professor;* Donald M. Perkins, *Instructor.*

1-2. The Elements of College Algebra, Trigonometry, and Analytical Geometry. A review of the fundamental principles of high school algebra; the essential elements of college algebra; the theory and applications of plane trigonometry and the analytic geometry of the straight line and certain special curves. Mr. Perkins.

Only students who receive grades of not less than 80 in Mathematics 1-2 fulfill the equivalent of Mathematics 5-6 and may continue with Mathematics 17-18.

Prereq.: Two years of mathematics in high school including at least one year of algebra. 6 rec.; 5 cr.

5, (5) 6. First Year Mathematics. Algebra, trigonometry and analytic geometry. Messrs. Slobin, Solt, Demos, Lewis, Kichline and Perkins.

Prereq.: See requirements of mathematics for admission to College of Technology. 6 rec.; 5 cr.

10. Astronomy. A brief descriptive course. The earth as an astronomical body; the sun and the solar system; the constellations; the stars. Mr. Solt.

3 rec.; 3 cr.

15-16. A First Year Mathematics. Algebra, trigonometry, analytical geometry and differential calculus. Messrs. Slobin and Demos.

Prereq.: 3 years of high school mathematics and superior rating on college tests. 6 rec.; 5 cr.

17-18, (18). Calculus. Applications of differentiation and integration; special methods of integration; the definite integral, applications of the definite integral to geometry, physics, and mechanics; introduction to sequence and series. Messrs. Slobin, Solt, Demos, Lewis, and Kichline.

Prereq. for 17: Mathematics 6 or 16. Prereq. for 18: Mathematics 16 with a grade over 75 or mathematics 17. 3 rec.; 3 cr.

20. Solid Geometry. Elements of solid geometry. Mr. Perkins.

Prereq.: High school algebra and plane geometry. 2 rec.; 2 cr.

21-22. Mathematics for Students of Agriculture. Elements of algebra, geometry and trigonometry. Messrs. Bauer, Perkins.

3 rec.; 3 cr.

33. Commercial Algebra. Preparation for, and introduction to mathematics of finance; use of calculating machines. This course is designed to prepare students for mathematics 34 and 61.

Prereq.: Two years of mathematics in high school including at least one year of algebra. 3 rec.; 3 cr.

34. Mathematics of Finance. Simple and compound interest, discount, annuities, depreciation, evaluation of securities, building and loan associations, and elements of life insurance. Mr. Kichline.

Prereq.: Either mathematics 1, 5, 22, or 33. 3 rec.; 3 cr.

51-52. Advanced Calculus, Differential Equations and Their Application to Engineering Problems. Messrs. Slobin, Solt, Demos.

Prereq.: Mathematics 18. Mathematics 51, 3 rec.; 3 cr.; mathematics 52, 1 rec.; 1 cr.

55-56. Advanced Plane and Solid Analytical Geometry. Mr. Solt, Mr. Demos.

Prereq.: Mathematics 18. 3 rec.; 3 cr. (Given in alternate years. Not offered in 1942–43.)

57. The History of Mathematics. Designed especially for those preparing to teach mathematics in high school. An historical background and an appreciation of the development of various fields of mathematics. Mr. Demos.

Prereq.: Mathematics 18. 3 rec.; 3 cr.

58. Vector Analysis. Vector and scalar algebra and geometry, differentiation and differential operators, applications to electrical theory and to mechanics, dynamics, and hydro-dynamics. Mr. Solt.

Prereq.: Mathematics 18. 2 rec.; 2 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the Social Science fields. This course is listed as Social Statistics 51. (See page 280.)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61 and 62.

61-62. Introduction to Statistical Methods. Graphical representation of statistical data, frequency distribution, averages, measures of dispersion, index numbers, linear correlation, time series. Mr. Bauer, Mr. Kichline.

Prereq.: One year of college mathematics, or its equivalent. Students who have credit for mathematics 41-42 cannot register for this course. 3 rec.; 3 cr.

63-64. Economic and Social Statistics. A continuation of 61-62, including a more thorough study of correlation, multiple and partial correlation, time series including trend and seasonal variation and cycles, sampling, variance, tests of significance. Material selected to meet the needs of advanced students and to throw light on statistical research methods. Mr. Bauer.

Prereq.: Mathematics 61–62. 3 rec.; 3 cr.

71-72. Advanced Algebra. Matrix theory, including elementary divisors and invariant factors; linear transformations; quadratic bilinear, and Hermitian forms; invariants and covariants with geometric applications; and topics from the theory of equations, including symmetric functions, and groups of substitutions. Mr. Demos, Mr. Lewis.

Prereq.: Mathematics 18. 3 rec.; 3 cr. (Given in alternate years. Offered in 1942–43.)

MATHEMATICS-EDUCATION (MATH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL MATHEMATICS. The aims and values of secondary school mathematics, the recommendations of the national committee on mathematics requirements, and the state board requirements; also, the subject-matter and the sequence in which it should be presented in both junior and senior high schools, and the various techniques used in teaching secondary school mathematics. Errors, testing program and remedial teaching. Lectures, assigned readings and discussions. Mr. Perkins.

Prereq.: Mathematics 18, or 34 and 17. Students preparing to teach mathematics in high school should register for this course. 3 rec.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

MECHANICAL ENGINEERING

GEORGE W. CASE, *Professor;* EDWARD L. GETCHELL, *Associate Professor;* THOMAS J. LATON, *Assistant Professor;* EDWARD T. DONOVAN, *Assistant Professor;* E. HOWARD STOLWORTHY, *Assistant Professor;* LYMAN J. BATCHELDER, *Instructor;* JOHN C. TONKIN, *Instructor;* ELIAS O'CONNELL, *Instructor;* TENHO S. KAUPPINEN, *Instructor.*

1-2. ENGINEERING DRAWING. The fundamentals of engineering drawing, including freehand lettering, use of drawing instruments, a brief study of isometric drawing, and the solution of problems in engineering drawing by applying the principles of descriptive geometry. Messrs. Laton, Stolworthy, and Kauppinen.

Prereq.: Mechanical engineering 1 required of all technology freshmen. Mechanical engineering 2 required of civil, electrical and mechanical engineering freshmen. 2 lab.; 2 cr.

(1) MECHANICAL DRAWING. Work in lettering, the plotting and interpretation of charts and graphs, and the use of drawing instruments. Projections of machinery and simple construction problems.

Required of freshmen in hotel administration. Elective for others by permission of the instructor. 2 lab.; 2 cr.

3. MACHINE DRAWING. Application of the principles of engineering drawing to the drawing of machine parts. Various pictorial systems as an aid in sketching. Reproduction methods and modern drafting room organizations. Commercial drafting room methods are employed in sketching machine parts, drawing from sketches, and making tracings. Mr. Laton.

Prereq.: Mechanical engineering 1. Required of electrical and mechanical engineering sophomores. 2 lab.; 2 cr.

4. KINEMATICS. Motion in machine construction; belts and other flexible connectors; gears and gear teeth; wheels in trains; epicyclic

trains; cams; instantaneous centers; linkwork, velocity and acceleration diagrams. Mr. Laton.

Prereq.: Mechanical engineering 1. Required of electrical and mechanical engineering sophomores. 2 rec.; 2 lab.; 3 cr.

5-6. MECHANICAL LABORATORY. An over-all view of the more elementary features of mechanical engineering. Introduction of the equipment in the mechanical laboratory and the university power plant, and instruction in its use for studying problems found in mechanical engineering practice. Mr. Donovan.

Required of sophomores in mechanical engineering. 1 lab.; 1 cr.

7-8 MECHANICS. A study of forces and moment of forces; determination of stresses in trusses and cranes; centroids and center of gravity; rectilinear and curvilinear motion; translation and rotation of bodies; work, power and energy. The application of mechanics to the determination of stress and strain in rigid bodies. The study of thin walled cylinders; riveted joints; torsion; transverse loading of beams; deflection in beams of all kinds; study of columns; compound stresses as applied to design of machine parts. Work in the second semester to be paralleled by exercises in the materials laboratory. Mr. Getchell.

Prereq.: Mathematics 18 and physics 7. Required of juniors in mechanical engineering. Mechanical engineering 7: 4 rec.; 4 cr. Mechanical engineering 8: 3 rec.; 1 lab.; 4 cr.

9-10. MECHANICS. Similar to mechanical engineering 7-8, but with those portions having application to the design of machine parts omitted. Mr. Getchell.

Prereq.: Mathematics 18 and physics 7. Required of juniors in civil and electrical engineering. Mechanical engineering 9: 3 rec.; 3 cr. Mechanical engineering 10: 3 rec.; 1 lab.; 4 cr.

11-12. MECHANICS. Principles of mechanics as applied to architectural work. Force systems, moments, equilibrium, trusses, center of gravity and moment of inertia; tension, compression and shear; riveted joints; strength and deflection of beams; columns; reinforced concrete. Mr. Getchell.

Required of sophomore architects. 3 rec.; 3 cr.

13. ELEMENTARY METALLURGY. A study of ferrous and non-ferrous metals and alloys used in engineering; a survey of the field of metals with particular attention to structure and properties resulting from alloying and heat treatments. Mr. Getchell.

Required of juniors in mechanical engineering. 2 rec.; 2 cr.

15-16. Machine Design. Application of the principles of mechanics to the design of machine elements with the idea of manufacturing the parts in the most economical manner in the shops. General principles of design will be followed rather than the development of any particular system of procedure. Mr. Laton.

Prereq.: Mechanical engineering 8. Required of senior mechanical engineers. 1 rec.; 2 lab.; 3 cr.

17. Heat Treatment Laboratory. The study of the heat treatment of steel to obtain the proper strength, hardness, and ductility. Methods of determining the carbon content. Study of the crystalline structure by means of the microscope to ascertain the effect of any given heat treatment and to check the carbon content.

Prereq.: Mechanical engineering 13. Required of seniors in mechanical engineering. 1 lab.; 1 cr.

21. Heat Power Engineering. The fundamental theory of engineering thermodynamics and its applications to steam power plant and internal combustion equipment. Mr. Kauppinen.

Prereq.: Mathematics 16 or 17 and physics 8. Required of civil engineering juniors. 3 rec.; 3 cr.

22. Meteorology. Fundamental physical and thermodynamic laws and general structure of the atmosphere. Air mass theory and a brief study of the technicalities underlying forecasting of atmospheric changes. Mr. Stolworthy.

Prereq.: Physics 7 or its equivalent. Elective for all students. 2 lec.; 1 lab. (two-thirds semester); 2 cr.

23-24. Thermodynamics. The fundamental laws of thermodynamics and their relation to the operation of mechanisms using gases and vapors as their working substances. Mr. Donovan.

Prereq.: Mathematics 16 or 17. Required of junior mechanical engineers. 3 rec.; 3 cr.

25-26. Heat Power Engineering. The laws of engineering thermodynamics and a consideration of steam power plant and internal combustion engine equipment. Mr. Donovan.

Prereq.: Mathematics 16 or 17. Required of junior electrical engineers. 25: 3 rec.; 3 cr. 26: 3 rec.; 1 lab.; 4 cr.

27. Mechanical Laboratory. The apparatus and methods of testing power plant operation and equipment. Messrs. Donovan, and Kauppinen.

Parallel requirement: Enrollment in mechanical engineering 25-26. Required of junior electrical engineers. 2 lab.; 2 cr.

29-30. Mechanical Laboratory. Methods of investigating operation and testing of power plant equipment. Mr. Donovan and Mr. Kauppinen.

Parallel requirement: Enrollment in mechanical engineering 23. Required of junior mechanical engineers. 29: 2 lab.; 2 cr. 30: 1 lab.; 1 cr.

37. Aeronautics. Elementary aerodynamics and aircraft construction; the use of the wind tunnel. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and civil engineering 24. Alternate with automotive engineering for seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

38. Meteorology and Navigation. Synoptic meteorology and the instruments and methods used in navigation of aircraft. Mr. Stolworthy.

Prereq.: Physics 7. 2 rec.; 1 lab.; 3 cr. Alternate with automotive engineering for seniors in mechanical engineering.

39. Heating and Ventilating. Heat losses and ventilation requirements of buildings, and the design of specific heating and ventilating systems. Mr. Stolworthy.

Required of seniors in mechanical engineering. 2 lab.; 2 cr.

40. Heating and Ventilating. Present methods of heating and ventilating buildings. Mr. Stolworthy.

Required of juniors in architecture in 1941–42. Required of juniors and seniors in architecture in alternate years beginning in 1943–44. Required of juniors and seniors in hotel administration in alternate years beginning in 1942–43. 1 rec.; 1 lab.; 2 cr.

41, (41). Civilian Pilot Training Ground School. A Civil Aeronautics administration controlled course covering aircraft operation, meteorology and navigation. A C.A.A. certificate of competency is given upon successful completion of the course. Mr. Stolworthy and assistants.

Required of C.P.T. enrollees. Elective for a limited number of other sophomores, juniors and seniors. 3 cr.

47, 48. Contribution of Engineers and Scientists to the Field of Engineering. The personal characteristics and life work of engineers and scientists. Intended for engineering students who are disqualified from military science and physical education; less reading will be required if disqualified only from the former. Mr. Kauppinen.

2 rec.; 2 cr.

49. Thesis. The thesis embodies research or commercial investigation. Equal emphasis upon composition and accuracy in subject matter.

Required of senior mechanical engineers. 1 rec.; 2 lab.; 2 cr.

52. Mechanical Laboratory. Testing of steam and gas engines in accordance with A.S.M.E. power test codes. Mr. Donovan, Mr. Kauppinen.

Prereq.: Mechanical engineering 30. Required of senior mechanical engineers. 2 lab.; 2 cr.

53-54. Power Plants. A study of the steam generating power plant dealing with its equipment and costs. Mr. Donovan.

Prereq.: Mechanical engineering 24. Required of senior mechanical engineers. Mechanical engineering 53: 2 rec.; 2 cr. Mechanical engineering 54: 1 rec.; 1 lab.; 2 cr.

55-56. Automotive Engineering. The internal combustion engine including its thermodynamics, carburetion, lubrication and vibration. Some features of the design of the principal moving parts of the automotive vehicle. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and 24. Alternate with aeronautics for seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

59, 60, 61, 62. Student Branch of American Society of Mechanical Engineers. An organization of junior and senior students. Preparation and presentation of addresses on mechanical engineering topics by members, and criticism by instructor of delivery, subject matter and terms used.

Required of juniors and seniors in mechanical engineering. No credit.

65. Contracts and Specifications. Legal principles underlying engineering work, including contracts, negotiable instruments and specifications. Mr. Case.

Required of senior engineers. 3 rec.; 3 cr.

66. Engineering Economy. The principles which form the basis of engineering procedures for obtaining the highest ratio of utility to cost. Mr. Case.

Required of senior engineers. 3 rec.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

Mechanical Engineering Shop Courses

S1-S3. Elementary Shop Practice. For shop work, freshmen in technology are divided into three groups meeting simultaneously in wood shop, machine shop and forge shop. Wood shop: pattern making and elementary foundry practice. Machine shop: practice in the operation of engine lathes and other machine tools, where precise measurements are important; the machinability of metals in the preparation of test specimens for use in the course in strength of materials. Forge shop: the operations necessary in the forging and welding of iron and

steel, in the hardening, tempering, and annealing of steel. These groups interchange at the end of each twelve week period, so that all three subjects are covered during the year. (S1 is Forge Shop, S2 is Machine Shop, S3 is Wood Shop.) Messrs. O'Connell, Tonkin and Batchelder.

1 lec.; 2 lab.; 2 cr.

(S4), S4. Wood Work. Plain cabinet making and finishing; use of stain filler, varnish, shellac, enamels, etc. Mr. Batchelder.

Elective for liberal arts and teacher training students. 2 lab.; 2 cr.

S5, (S5). Wood Shop. Practice teaching under the supervision of the instructor in wood working. Mr. Batchelder.

For seniors in industrial teacher training and education. 2 lab.; 2 cr.

S6. Wood Shop. Advanced pattern making or advanced cabinet making. Mr. Batchelder.

Prereq.: Mechanical engineering S1 or S3. For seniors in mechanical and electrical engineering and education. 2 lab.; 2 cr.

S12. Forge Shop. The forging of iron and steel. The operations of drawing, welding, upsetting, twisting, splitting and punching of iron; the hardening, tempering, and annealing of steel; and the case hardening of mild steel as adapted to agricultural work. Mr. O'Connell.

Elective for students in agricultural teacher training curriculum. 2 lab.; 2 cr.

S13, (S13). Forge Shop. Advanced work in forging, electric and acetylene welding, tempering, case hardening, tool dressing. Mr. O'Connell.

Prereq.: Mechanical engineering S1. For seniors in industrial teacher training curriculum. 2 lab.; 2 cr.

S17, (S17). Machine Shop. Continuation of work given in S1, S2. Mr. Tonkin.

Prereq.: Mechanical engineering S1, S2. 2 lab.; 2 cr.

S19-S20. Machine Shop. Advanced work on the lathe, milling machine, planer, shaper and turret lathe, involving making of tools and special machinery and apparatus. Mr. Tonkin.

Prereq.: Mechanical engineering S17. 2 lab.; 2 cr.

S21, (S21). Machine Shop. Manufacturing. The appreciation and measurement of skill, production methods, shop management and time study. Mr. Tonkin.

Prereq.: Mechanical engineering S20. 2 lab.; 2 cr.

S23. Farm Shop. A short course in general shop work to suit the individual needs of agricultural teacher preparation juniors. Adjusted

to meet previous experience in shop work. Mr. Tonkin and Mr. O'Connell.

Limited to agricultural teacher preparation juniors. 2 lab.; 2 cr.

S29-S30. Individual Projects. Students and other qualified persons may work in the shops on projects of their own selection. It is required that the project receive the approval of the instructor in the particular shop to be used and be supervised by him.

Prereq.: M.E. S1 or S2 or its equivalent. Hours and credits to be arranged.

MILITARY SCIENCE AND TACTICS

Colonel Edwin K. Smith, *Coast Artillery Corps, Professor;* Lieutenant Colonel Ted H. Cawthorne, *Infantry, Associate Professor;* Captain George W. Gage, *Coast Artillery Corps, Assistant Professor;* Captain Henry Hunt, *Infantry, Assistant Professor;* First Lieutenant Lehman C. Hutchins, *Coast Artillery Corps, Assistant Professor;* First Lieutenant Clarence W. Metcalf, *Infantry, Instructor;* Master Sergeant Fred H. Brown, *Assistant;* Sergeant Joseph A. Casey, *Assistant;* Sergeant Joseph E. Narbut, *Assistant.*

BASIC COURSE, INFANTRY

1-2. Military Fundamentals. Organization of the army and infantry; military discipline, courtesy and customs of the service; military history and policy; National Defense act and the R.O.T.C.; military obligations of citizenship; military sanitation and first aid; weapons, rifle marksmanship; map reading; leadership; drill and ceremonies. First Lieutenant Clarence W. Metcalf.

Required of freshmen. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

3-4. Second Year, Basic. Weapons, scouting and patrolling, musketry, combat principles, leadership, drill and ceremonies. Captain Henry Hunt and First Lieutenant Clarence W. Metcalf.

Required of sophomores. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

ADVANCED COURSE, INFANTRY

5-6. First Year, Advanced. Weapons, aerial photograph reading and interpretation, combat training, estimate of the situation and combat orders, combat principles, administration, motor vehicles, defense against chemical warfare, field fortification, leadership, drill and ceremonies. Captain Henry Hunt.

Prereq.: Military Science 4. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

7-8. Second Year, Advanced. Military history and policy; property, procurement and funds; O. R. C. Regulations; combat intelligence;

signal communications; mechanization, tanks, anti-aircraft defense; military law; combat principles, platoon, company and battalion; leadership; drill and ceremonies. Lieutenant Colonel Ted H. Cawthorne.

Prereq.: Military Science 6. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

BASIC COURSE, COAST ARTILLERY

9-10. MILITARY FUNDAMENTALS. Organization of the army and the coast artillery; military discipline, courtesies and customs of the service; military history and policy; the National Defense act and the R.O.T.C.; military obligations of citizenship; rifle marksmanship; map reading; coast artillery ammunition, weapons and material; military sanitation and first aid; leadership; drill and ceremonies. First Lieutenant Lehman C. Hutchins.

Required of freshmen in coast artillery. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

11-12. SECOND YEAR, BASIC. Fire control and position finding for seacoast artillery; characteristics of naval targets; rigging; basic gunnery; fire control and position finding for anti-aircraft artillery; weapons and material; operation and maintenance of motor transportation; leadership; drill and ceremonies. First Lieutenant Lehman C. Hutchins.

Prereq.: Military Science 10. Required of sophomores in coast artillery. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

ADVANCED COURSE, COAST ARTILLERY

13-14. FIRST YEAR, ADVANCED. Map and aerial photograph reading; gunnery, fire control and position finding for seacoast and anti-aircraft artillery; administration; defense against chemical warfare; signal communication-coast artillery; orientation; leadership; drill and ceremonies. Captain George W. Gage.

Prereq.: Military Science 12. 3 rec.; 1 drill; or 5 rec., according to season; 3 cr.

15-16. SECOND YEAR, ADVANCED. Military history and policy; military law, (a) law of military offenses, (b) court martial; property, emergency procurement and funds; mechanization; Officers Reserve Corps regulations; leadership, drill and command; ceremonies; tactics and technique of seacoast artillery; tactics and technique of anti-aircraft artillery; field fortifications; combat orders and solution of problems; orientation, topographical operation required for artillery firing. Captain George W. Gage.

NOTE.—Subjects common to both coast artillery and infantry in courses 7-8 and 15-16 are combined and taught by Lieutenant Colonel Ted H. Cawthorne, Infantry.

Prereq.: Military Science 14. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

NOTE.—Students following courses 1-2; 3-4; or 9-10; 11-12 above who also elect to serve in the university band will receive 1½ credit additional per semester.

MUSIC

ROBERT W. MANTON, *Associate Professor and Director;* BJORNAR W. BERGETHON, *Assistant Professor;* CHARLES W. TRITT, *Graduate Assistant;* MILTON BERMAN, *Assistant;* WESLEY COPPLESTONE, *Assistant.*

MUSICAL ORGANIZATIONS

All the university musical organizations are under the direction of Mr. Bjornar W. Bergethon to whom inquiries in regard to these organizations should be addressed.

1, (1). UNIVERSITY BAND. Open to all undergraduates on basis of individual try-outs. The university band furnishes music for the R.O.T.C. drills, all athletic events at home, and also gives several concerts during the college year.

Prereq.: Permission of the instructor. Freshman and sophomores, ½ cr.; juniors and seniors, 1½ cr.

3M, (3M). MEN'S GLEE CLUB.

3W, (3W). WOMEN'S GLEE CLUB. Open to all students interested in singing who fulfill the requirements of a try-out.

Prereq.: Permission of the instructor. 2 rec.; ½ cr.

5, (5). UNIVERSITY CHOIR. An advanced choral group devoted to the study and performance of the best classical and modern choral literature.

Prereq.: Permission of the instructor. 3 rec.; 1 cr.

7, (7). ENSEMBLE. Small groups of instrumentalists and vocalists organized to provide advanced students experience in such groups as the Madrigal Singers, the string quartet, the men's quartet and the women's sextet.

Prereq.: Permission of the instructor. 2 rec.; ½ cr.

9, (9). UNIVERSITY ORCHESTRA. Open to all students on basis of individual try-outs. The orchestra gives several concerts during the year and also accompanies the vocal groups and solo instrumentalists on various occasions.

Prereq.: Permission of the instructor. 2 rec. 1 cr.

A student may belong to one or more of the above organizations during the four years. However, not more than 8 semester credits earned in these organizations may be counted toward fulfillment of the requirements for graduation.

THEORY AND COMPOSITION

11-12. ELEMENTS OF MUSIC. Designed to familiarize the student with the elements of music and to give him a general appreciation of

pitch, rhythm, and harmony. Sight singing and rhythmic, melodic, and harmonic dictation. Music notation and terminology.

Recommended to students who wish to prepare themselves for intelligent listening to music and for participation in musical activities such as glee clubs, etc. Mr. Manton.

Open to all students. 3 rec.; 3 cr.

21-22. Harmony and Beginning Counterpoint. Designed to supplement the technical training begun in music 11-12. Seventh chords, altered chords, suspensions, modulation, imitation, analysis and the five orders of simple two-part counterpoint together with the commencement of composition in the smaller forms constitute the course content. Mr. Manton.

Prereq.: Music 11-12. Required of students completing the Music Education curriculum. 3 rec.; 3 cr.

31-32. Counterpoint. Three and four-part counterpoint, the free harmonization of chorals and melodies, double counterpoint, imitative counterpoint, together with beginnings of canonic and fugal writing. Composition will include the writing of inventions, choral preludes and simple forms of free instrumental composition. Mr. Manton.

Prereq.: Music 21-22. 3 rec.; 3 cr.

35-36. Orchestration. Designed to ground the student in the idiomatic writing and technique necessary to score effectively for the modern symphony orchestra and the band. The characteristics and tone quality of the instruments; transcriptions with various combinations—strings, wind and brass. Mr. Bergethon.

Prereq.: Music 21–22. Required of students completing the Music Education curriculum. 2 rec.; 2 cr. (Not offered in 1942–43.)

41-42. Composition. Elementary composition in the smaller forms. Designed to furnish thorough training in detail relating to sentence formation, two and three-part forms, the variation forms, and the various rondo forms up to sonata form. This course requires knowledge of harmony and counterpoint and proficiency in pianoforte playing. Mr. Manton.

Prereq.: Music 31-32. 3 rec.; 3 cr. (Not offered in 1942–43.)

43-44. Conducting. The technique of the baton; simple and complex rhythms; specific problems from various choral and symphonic works; score reading; problems of choral and instrumental technique will be discussed. Mr. Bergethon.

Prereq.: Music 35-36. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

51-52. Canon and Fugue. Perfection of the contrapuntal technique of the student begun in 31–32 to enable him to study the larger and freer forms of composition. Based largely upon the fugal works of Bach, it

consists of practice in writing the more practical types of canon, and in the analysis and composition of fugues. Mr. Manton.

Prereq.: Music 31-32. 3 rec.; 3 cr. (Not offered in in 1942–43.)

HISTORY, LITERATURE AND APPRECIATION

13, 14. The Appreciation of Music. Fundamentally a course to develop intelligent listening through formal analysis of the irreducible minimum of great musical masterpieces. A knowledge of the development of musical form is essential to the thorough understanding and appreciation of the works of the great composers as embodied in their symphonies, overtures, sonatas, symphonic poems, etc. A selection of the most important works of Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Schumann, Mendelssohn, Chopin, Liszt, Brahms, Franck, Tschaikowsky, d'Indy and many others, analyzed by the students and the instructor and played several times, in the classroom. Mr. Manton.

This course cannot be used to satisfy major requirements.
Open to all students. 3 rec.; 2 cr.

37-38. Music History and Literature. Early music and classicism. An intensive study of the actual systems, spirit and content of the music of the period rather than résumés of biography and critical evaluations. Music of Greece and Rome, the early church, evolution of notation, beginnings of harmony and counterpoint, the Troubadours and Minnesingers, the Netherland and Roman masters of church music, the secular music of the English Madrigalists, beginnings of instrumental music, and opera and oratorio, etc., through the classic composers to Schumann. Lectures, readings and reports. Mr. Manton.

Prereq.: Music 11-12. Required of students completing the Music Education curriculum. 3 rec.; 3 cr.

47-48. Music History and Literature. Romanticism and modernism in music. This course supplements music 37-38 and continues the study of the great romantic composers and their works, the neo-classicism of Brahms and Franck, d'Indy, etc., and on into the twentieth century with special emphasis upon the works of such composers as Debussy, Ravel, Sibelius, Delius, Vaughan Williams, Stravinsky, Hindemith and many others. Contemporary values, gains, losses and shifts of emphasis and the continuity of musical thought will be brought out and every attempt made to adjust the listener's ear to the new music. Lectures, readings and reports. Mr. Manton.

Prereq.: Music 11-12. Required of students completing the Music Education curriculum. 2 rec.; 2 cr. (Not offered in 1942–43.)

APPLIED MUSIC

Instruction is offered in piano, organ, voice, violin, and cello. Students may begin the study of applied music at any stage of advancement. The lessons are adjusted to the individual needs of the student. By means of technical exercises, studies, and solos, the student's deficiencies

are corrected and his talent developed. Correct habits of practice are insisted upon from the first. For some students it is necessary to intensify the technical side of playing and singing, since inadequate technique obviously is a handicap to a successful expression of musical thought.

Lessons in applied music are based on one-half hour private instruction. For each lesson a minimum of one hour of daily practice will be required. One semester hour of credit will be given for one-half hour lesson and five hours of practice a week; two semester hours of credit will be given for two lessons and ten hours practice a week. The special fee for applied music is $25.00 for one, or $40.00 for two lessons a week. These fees include the use of a practice room for the required preparation. Organ students will be charged an additional fee for the use of the practice organ.

PIANO 19-20. A FIRST YEAR OF PIANO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

PIANO 29-30. A SECOND YEAR OF PIANO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

PIANO 39-40. A THIRD YEAR OF PIANO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

PIANO 49-50. A FOURTH YEAR OF PIANO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

ORGAN 19-20. A FIRST YEAR OF ORGAN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

ORGAN 29-30. A SECOND YEAR OF ORGAN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

ORGAN 39-40. A THIRD YEAR OF ORGAN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

ORGAN 49-50. A FOURTH YEAR OF ORGAN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VIOLIN 19-20. A FIRST YEAR OF VIOLIN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VIOLIN 29-30. A SECOND YEAR OF VIOLIN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VIOLIN 39-40. A THIRD YEAR OF VIOLIN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VIOLIN 49-50. A FOURTH YEAR OF VIOLIN INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

CELLO 19-20. A FIRST YEAR OF CELLO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

CELLO 29-30. A SECOND YEAR OF CELLO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

CELLO 39-40. A THIRD YEAR OF CELLO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

CELLO 49-50. A FOURTH YEAR OF CELLO INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VOICE 19-20. A FIRST YEAR OF VOICE INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VOICE 29-30. A SECOND YEAR OF VOICE INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VOICE 39-40. A THIRD YEAR OF VOICE INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

VOICE 49-50. A FOURTH YEAR OF VOICE INSTRUCTION.
1 or 2 lessons; 1 or 2 cr.

MUSIC EDUCATION

The department of music offers a four-year curriculum for teachers and supervisors of school music (see page 153).

MUSIC-EDUCATION (MU-ED) 91. PROBLEMS IN THE TEACHING OF ELEMENTARY SCHOOL MUSIC. Aims, scope, and organization of materials and activities in the elementary schools in keeping with modern trends in educational philosophy. Particular attention will be given to the child voice, its care and development. A thorough study and demonstration of materials and methods for the various grades will be made. Observation of elementary school music. Mr. Bergethon.

Prereq.: Music 11-12. Required of students completing Music Education curriculum. 3 rec.; 3 cr. (Not offered in 1942–43.)

MUSIC-EDUCATION (MU-ED) 92. PROBLEMS IN THE TEACHING OF SECONDARY SCHOOL MUSIC. The application of principles of education to the music curriculums of the junior and senior high school. Consideration will be given to the adolescent voice and the classification of voices; the selection of materials for study, performance, and discriminative listening; and building a course of study on student needs and interests. Observation of music programs in secondary schools. Mr. Bergethon.

Prereq.: Mu.-Ed. 91. Required of students completing the Music Education curriculum. 3 rec.; 3 cr. (Not offered in 1942–43.)

MUSIC-EDUCATION (MU-ED) 95. THE TEACHING OF STRINGED INSTRUMENTS. A demonstration course in class-teaching of stringed instruments designed to simulate classroom situations and methods as far as possible. Problems of the school orchestra will be discussed. Mr. Bergethon.

Prereq.: Permission of the instructor. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

MUSIC-EDUCATION (MU-ED) 96. THE TEACHING OF WOODWIND INSTRUMENTS. A study of correct tone production and technique of woodwind instruments. Materials and procedures for class and individual instruction will be emphasized. Consideration to the school band as a concert organization will be given. Mr. Bergethon.

Prereq.: Permission of the instructor. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

MUSIC-EDUCATION (MU-ED) 97. THE TEACHING OF BRASS AND PERCUSSION INSTRUMENTS. A study of correct tone production and tech-

nique of brass instruments and of rudimentary percussion technique. Materials and procedures for class and individual instruction will be emphasized. Consideration will also be given to the school band as a marching unit and to elementary instruction in drum-majoring. Mr. Bergethon.

Prereq.: Permission of the instructor. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

PHILOSOPHY

Courses in philosophy are described in the offerings of the department of history on page 238.

PHOTOGRAPHY

1, (1). Elementary Photography. The theory and technique of photography covering camera operation, printing, enlarging, and presentation. Special lectures on optics and photographic chemistry by physics and chemistry department staff members. Mr. Nasvik.

Prereq.: Open to sophomores, juniors and seniors. 1 lec.; 2 lab.; 3 cr. Laboratory fee: $5.00.

PHYSICAL EDUCATION FOR MEN

Carl Lundholm, *Professor, Director of Physical Education and Athletics;* Henry C. Swasey, *Associate Professor;* Paul C. Sweet, *Associate Professor;* George H. Sauer, *Assistant Professor;* Charles M. Justice, *Assistant Professor;* Edward J. Blood, *Instructor;* Anthony Dougal, *Assistant Professor.*

The required program of physical education, P. E. 31, 32, 33, 34, was in the process of revision when this catalog was printed. Information relative to the revised program will be available to students in September 1942.

TEACHER PREPARATION COURSES

Required of students registered in the university physical education teacher preparation curriculum for men. Elective for other students by special permission from the director of physical education and athletics.

23. Principles of Physical Education. The aims, objectives and principles of physical education and the historical factors which have influenced the physical life of nations. Mr. Lundholm.

3 lec.; 3 cr.

40. Winter Sports. Instruction and practice in ski jumping, downhill, slalom and cross country skiing and snowshoeing. Conditioning of men, waxing of skis and selection and care of equipment. The organization and management of winter carnivals and other competitions. Special emphasis on methods of teaching skiing.

2 rec.; 2 cr.

45. Football. A history of football with consideration of its educational implications and an analysis of the various systems of play. Instruction in team and individual offensive and defensive fundamentals. The rules, theory, strategy, generalship of team play and the responsibilities of the coach for the physical welfare of the team.

2 rec.; 2 cr.

46. Baseball. Theoretical and practical consideration of the basic principles of batting and fielding; the fundamentals of each position; special stress on problems involving team play, coaching methods, physical conditioning and rules; a history of the game with a consideration of its educational values.

2 rec.; 2 cr.

47. Track and Field Athletics. Instruction and practical demonstrations in starting, sprinting, middle distance and distance running, relay racing, hurdling, high and broad jumping, pole vaulting, shot putting, discus, hammer and javelin throwing. Methods of preparing contestants for the various events.

2 rec.; 2 cr.

48. Basketball. History of basketball with a consideration of its educational values. Theory and practice in the fundamentals of individual offense and defense. The various styles of team offense and defense and rules of the game. Problems in handling and conditioning a team.

2 rec.; 2 cr.

61. Problems of Teaching in Physical Education. Methods and materials of instruction, theories of play and actual practice for the successful teaching of recreational activities in school, on the playground and in the community. Studies of activities adapted to different levels of maturity.

3 rec.; 3 cr.

63. Care and Prevention of Injuries. Nature and causes of injuries incident to physical activities, the common hazards of play, and preventative measures for children and athletes are discussed. First aid principles are presented. Elective for seniors who have taken one of the following: Physical education 40, 45, 46, 47, 48.

2 rec.; 2 cr.

65. Administration of Physical Education in Secondary Schools. The aims and objectives of health and physical education. Organization and supervision of a complete unified program of health and physical education including the legal aspects, intra-mural and interscholastic athletics, medical problems, budgeting, financing, maintenance of equipment, publicity programs and office management. Each student will be given an opportunity to serve on a committee to draw up an

original program of health and physical education in a theoretical or actual situation found in some secondary school. Mr. Lundholm.

Prereq.: Zoölogy 17, 18; physical education 23 and 61; and two courses in the coaching of sports. These last may be taken concurrently. 3 rec.; 3 cr.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 93 (93). DIRECTED TEACHING IN PHYSICAL EDUCATION. Given in the department of physical education and athletics for men.

Prereq.: Zoölogy 17, 18; physical education 23, and 61 or 35. The student must have completed the methods course in the sport which he is directing or take the course concurrently. 2 to 4 cr.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 94. SUPERVISED TEACHING IN PHYSICAL EDUCATION IN THE FIELD. An opportunity under joint supervision of the physical education and education departments, to coach athletics in secondary schools and to assist in supervising a recreational program.

Prereq.: Zoölogy 17, 18; physical education 23, 65 and 35 or 36, methods courses in those sports in which the student intends to become actively engaged. 2 to 4 cr.

PHYSICAL EDUCATION FOR WOMEN

MARGARET R. HOBAN, *Assistant Professor and Director;* MARION BECKWITH, *Instructor;* NELL W. EVANS, *Instructor;* ELEANOR M. SPILLANE, *Graduate Assistant;* ELEANOR WADE, *Graduate Assistant.*

AIM. To make of the physical education program a dynamic, functional, and vital part of the contribution of the university to the student; to educate through the physical; to provide in accordance with students' needs, interests, and capacities opportunity for the acquisition of neuromuscular skills, habits and practices of health and recreation.

REQUIREMENTS. Freshman women are required to take physical education 1, 2. Every woman student must take at least one course of physical activity each semester of her freshman, sophomore, and junior years. One additional activity or an academic course within the department may be elected each semester for additional credit. Except in special cases, the same activity shall not be credited more than twice.

Each student must, upon entering, have a physical examination by the university physician and a posture test by the physical education staff. Quarterly activities elected by students are approved by the department on the basis of the results of these examinations. Students unfit for physical education activities are assigned theoretical work in hygiene.

Women students following any teacher training curriculum in the university are urged to elect for required physical education the following activities: Folk dancing, community games, softball, soccer, hockey, basketball, formal gymnastics, stunts and tumbling.

REQUIRED COSTUME AND EQUIPMENT. Special gymnasium uniform consists of blue cotton shorts and shirt, white anklets and regulation gymnasium shoes. Students are required to furnish their own individual equipment for such activities as tennis, modern dancing, individual gymnastics, winter sports. For bowling there is a charge of 25 cents a class; for riding, 85 cents a class; for sailing, yacht club membership is necessary.

1, 2. PHYSICAL EDUCATION. The art of healthful living. Problems of health, personal appearance, conduct and personality. Activity classes scheduled as follows:

First semester. Hockey, soccer, tennis, archery, basketball, badminton, sailing, bowling, fencing, skating, riding, individual gymnastics, community games, folk dancing, modern dancing.

Second semester. Stunts and tumbling, fencing, bowling, skiing, archery, tennis, lacrosse, softball, golf, badminton, sailing, riding, community games, American country dancing, pageant dancing, modern dancing, and individual gymnastics.

(Consult course time and room schedule for division of activities according to the season of the year.) Individual gymnastics is required of each freshman whose physical condition indicates this need.

Required of all freshmen. 1 lec. or rec.; 2 lab. periods; 2 cr.

3, 4. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Required of sophomores. 2 periods; 1 cr.

5, 6. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Required of juniors. 2 periods; 1 cr.

7, 8. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to seniors. 2 periods; 1 cr.

11, 12. PHYSICAL EDUCATION. Elective courses open to freshmen may be chosen from the list under physical education 1, 2.

2 periods; 1 cr.

13, 14. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to sophomores. 2 periods; 1 cr.

15, 16. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to juniors. 2 periods; 1 cr.

17, 18. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to seniors. 2 periods; 1 cr.

MAJOR COURSES

23. PRINCIPLES OF PHYSICAL EDUCATION. The aims, objectives, and principles of physical education and the historical factors which have influenced the physical life of nations. Mr. Lundholm.

3 lec.; 3 cr.

55. REMEDIAL GYMNASTICS. The adoption of exercise to individual needs, capacities, and limitations; physical abnormalities and their correction. Miss Hoban.

Prereq.: Zoölogy 17, 18, 2 lec. or rec.; 2 lab.; 3 cr.

63, 64. THE THEORY AND COACHING OF SPORTS FOR WOMEN. The principles involved in the teaching of team games and individual sports with emphasis on coaching methods and officiating. Miss Evans.

2 lec. or rec.; 4 lab.; 3 cr.

66. ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. Administrative relationships and procedures in the conduct of physical education and health education in the secondary schools. Preparation of general administrative policies; facilities and equipment; adaptation of physical activity to individual needs. Miss Hoban.

3 lec.; 3 cr.

(P-E) 91. PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. The organization of a comprehensive program of activities for use from the primary grades through college. Miss Hoban.

3 lec. or rec.; 2 lab.; 4 cr.

ELECTIVE COURSES OPEN TO ALL STUDENTS INTERESTED IN HEALTH, PHYSICAL EDUCATION AND RECREATION

24. ORGANIZED CAMPING. The methods, objectives and purposes of organized camping for groups; standards for organized summer camps, facilities, equipment, food sanitation, health and safety requirements necessary for organized camps; camp departments, programs, and camp leadership qualifications. Miss Hoban.

3 lec.; 3 cr.

36. PLAY AND RECREATION. The theory of play, its place in education; administration, organization, and leadership of play and recreation; hobbies and leisure time activities for those who plan to do playground recreation work. Miss Hoban.

3 lec.; 3 cr. (Formerly given as 35.)

(P-E) 92. DIRECTED TEACHING OF PHYSICAL EDUCATION FOR WOMEN. Opportunity for teaching of physical education activities under direction in the elementary and secondary schools. Miss Hoban.

Prereq.: (P.E.) 91. Open to seniors. 1 lec. or rec.; 2 lab.; 2 cr.

PHYSICS

HORACE L. HOWES, *Professor;* HARRY H. HALL,* *Assistant Professor;* GREGORY K. HARTMANN,* *Assistant Professor;* WILLIAM H. HARTWELL, *Assistant Professor;* HAROLD I. LEAVITT, *Assistant Professor;* FREDERICK D. BENNETT, *Instructor;* HOWARD C. HARDY, *Instructor;* GEORGE F. FORBES, *Assistant.*

Instruction in physics is given primarily by recitations and laboratories with frequent lectures, examinations, written reports and personal conferences. The aim of the department is to develop student minds capable of doing independent thinking in the science. There is a well-chosen collection of apparatus for use in laboratories and lectures.

1, 2. INTRODUCTORY PHYSICS. The properties of matter, heat, magnetism, electricity, wave-motion, sound and light. Demonstration lectures, laboratory and recitation. Messrs. Hartwell, Bennett and Forbes.

Required of students in architecture. Elective for liberal arts students. A knowledge of high school algebra and plane geometry is essential. 2 lec.; 1 rec.; 1 lab.; 4 cr.

4. ELEMENTS OF PHYSICS. A brief review of mechanics and heat; followed by studies in light and electricity. A working knowledge of arithmetic, algebra, and plane geometry is essential. Mr. Hartwell.

Required of sophomores in agriculture. 2 lec.; 1 rec.; 1 lab.; 4 cr.

5-6. PRE-MEDICAL PHYSICS. This course is identical with physics 1, 2 (Introductory physics), having the same lectures and recitation. In a separate laboratory, however, special attention is paid to the needs of students in preparation for medical work, such as the presentation of data in graphical form, and the manipulation of physical apparatus. Mr. Hartwell.

Required of juniors or seniors in the pre-medical curriculum. Elective for other students. 2 lec.; 1 rec.; one 3 hr. lab.; 5 cr.

7-8. GENERAL PHYSICS. Mechanics and properties of matter; heat; selected topics in sound and light; electricity and magnetism. Messrs. Howes, Hardy, Leavitt.

Prereq.: Mathematics 3 or 6 in advance, and mathematics 17-18 either in parallel or as a prerequisite. Required of sophomores in chemical, civil, electrical and mechanical engineering curriculums. Elective for those liberal arts students who have passed physics 1, 2 and have the prerequisites in mathematics. 1 experimental lec.; 3 rec.; 1 problem hour; 4 cr.

9. GENERAL PHYSICS LABORATORY. Open only to students studying, or credited with physics 7. Experiments in mechanics and properties of

* On leave of absence.

matter, with report writing and curve plotting of data. Appreciation of the laws of physical science; the development of laboratory technique, and the estimation of the limitations of scientific experimentation. Messrs. Howes, Hardy, Bennett, Leavitt.

Prereq.: The same as those for physics 7-8. Required of sophomores in chemical, civil, electrical and mechanical engineering curriculums. Elective for liberal arts students under the same conditions as physics 7-8. 2 lab.; 3 cr.

10. General Physics Laboratory. A continuation of physics 9 to include experiments in heat, sound, light, electricity and magnetism. Messrs. Howes, Hardy, Bennett, Leavitt.

Prereq.: Physics 7 and 9. Physics 8 in parallel or as a prerequisite. Required of students in chemical, civil, mechanical and electrical engineering curriculums. Elective for liberal arts students. 2 lab.; 3 cr.

15. Survey of Physical Science. The fundamental facts and principles necessary for an understanding of such subjects as the earth as an astronomical body and our neighbors in space; the origin of the solar system; the universe as a whole; the nature of matter and energy, heat, light, sound, electricity, radiant energy and atomic structure. Mr. Leavitt.

Open to sophomores preparing to teach in the fields of English, social studies, and the foreign languages, who may elect this course and physics 16 to meet their physical science requirements for the degree. 3 lec. or rec.; 3 cr.

16. Survey of Physical Science. The fundamental facts and principles necessary for an understanding of such subjects as the constitution of matter, physical changes, chemical changes, communication, the uncontrolled changes or geological evolution of our physical environment, the climate and weather. Mr. Leavitt.

Open to sophomores preparing to teach in the fields of English, social studies and the foreign languages. 3 lec. or rec.; 3 cr.

41-42. Intermediate Physics. A general survey of physics in which free use is made of the methods of calculus. The course is designed to introduce the student to the topics of mechanics, heat, light, sound and wave motion in a more rigorous manner than is possible in the elementary presentations. Mr. Bennett.

Prereq.: Mathematics 17-18; physics 1, 2 or physics 7, 8. Required course for liberal arts majors in physics. 2 lec.; 1 rec.; 3 cr.

51. Theory of Electrons. The theory of electricity including the passage of a current through a gas, the mobility of ions, the determination of charge and mass of the electron, ionization by collision, the

corona discharge, cathode rays, positive rays, thermionic emission, photo-electricity and X-rays. Mr. Howes.

Prereq.: Physics 7-8; mathematics 17-18. Required of seniors in electrical engineering. Open to juniors or seniors in liberal arts on same conditions. 2 lec.; 2 cr.

54. Acoustics. The principles of sound origins, propagation, and reception applied. Lectures and recitations. Mr. Howes or Mr. Hardy.

Prereq.: Physics 1, 2 for architects; physics 8 and 10 for others. Required for seniors in architecture. 3 lec.; 3 cr.

55. Experimental Physics. Designed to augment the student's knowledge of the theory and performance of optical instruments; to improve his laboratory technique in precision measurements. The fundamental physical theories underlying the phenomena of refraction, interference, diffraction and polarization will be discussed in the lecture periods. Mr. Hartwell.

Prereq.: Physics 1, 2, 7, or 8; mathematics 17-18. 2 lec.; 1 lab.; 4 cr.

56. Modern Experimental Physics. Measurement of the charge on the electron by the Millikan oil drop method; of $\frac{e}{m}$ by cathode ray deflection; of Planck's constant by the investigation of photoelectric cells and various other quantities will be taken up. The first portion of the laboratory work is planned to acquaint the student with the laboratory techniques of modern physics. A part of the course will consist of a development project for each student. Mr. Bennett.

Prereq.: Physics 1, 2; Mathematics 17-18. 2 lec.; 1 lab.; 4 cr.

*57-58. Introduction to Theoretical Physics. Equations of motion in particle dynamics and typical problems; simple harmonic motion; small oscillations; damped and forced oscillations; some rigid dynamics; normal coördinates; vibrating string; elasticity; heat flow; electrostatics; potential theory; energy in electromagnetic field; waves; dispersion; Huygens' principle. Mr. Bennett.

Prereq.: Mathematics 17-18; either physics 1, 2 or physics 7, 8; physics 41, 42 or equivalent. 2 lec.; 1 rec.; 3 cr.

*61. Electricity and Magnetism. Intended to give a theoretical background for the understanding of electrical phenomena, and a foundation for the study of electrical measurements. Electrostatics, magnetostatics, Kirchoff's laws, fields associated with currents, alternating currents, complex impedance, free and forced oscillations of a simple circuit, thermoelectricity, characteristics of vacuum tubes. Mr. Hardy.

Prereq.: Physics 7-8; mathematics 17-18. Required of seniors in physics and chemistry. 3 lec.; 3 cr.

64. Electrical Measurements. Experiments on the use of precision potentiometers, the constants of sensitive galvanometers, low

* Course to be given at the discretion of the head of the department.

resistance by the Kelvin double bridge, high resistance by the method of leakage and by direct deflection, the use of alternating current bridges for measuring capacity, self and mutual inductance and frequency, the characteristics of certain photoelectric cells. Mr. Hartwell.

Prereq.: Physics 8 and 10. Required of students in electrical engineering, chemistry and physics. 1 lec.; 1 lab.; 3 cr.

*65-66. Molecular Physics. An introduction to kinetic theory of gases, thermodynamics, and statistical mechanics as applied to physical and chemical problems. Mr. Hardy.

Prereq.: Physics 1, 2 or physics 7, 8; mathematics 17-18. 3 lec.; 3 cr.

71-72. Physics Seminar. Selected subjects in modern and classical physics are discussed before the seminar. Each student presents at least one paper per semester. Staff.

Prereq.: Mathematics 17-18; physics 7, 8; general scientific maturity. Required of seniors in physics. 1 lec.; 1 cr.

73-74. Thesis. A topic for experimental investigation will be assigned each student and a thesis covering the reading and the observations will be required. Staff.

For seniors in physics who have completed physics 41, 42 or equivalent.

General Science—Education (gen. sci.-ed.) 91. Problems in the Teaching of General Science. Units of subject matter presented in the form of lecture-demonstrations and discussions, accompanied by assigned readings. The objectives and methods of teaching general science developed with the subject matter presentations. Opportunity for students to participate in the lecture demonstrations. Mr. Leavitt.

3 lec. or rec.; 3 cr.

For courses primarily for graduate students; see catalog of the Graduate school.

POULTRY HUSBANDRY

T. Burr Charles, *Professor;* Albert E. Tepper, *Assistant Professor;* Fred E. Allen, *Assistant Professor;* Alan C. Corbett, *Instructor;* Carl W. Hess, *Instructor.*

5. Farm Poultry. The general principles of poultry husbandry and their practical applications with emphasis on factors of culling, breeding, housing, feeding, marketing, diseases and parasites, incubation and management. Mr. Charles, Mr. Tepper, Mr. Corbett, Mr. Hess.

Required of sophomores in agriculture. Paired with forestry 1; one half-semester. 3 lec.; 1 lab.; 2 cr.

16. Poultry Breeding. The genetic principles involved in breeding for egg production, including practical application and demonstration. Mr. Charles, Mr. Hess.

Required of all juniors in poultry. Elective for others. 2 lec.; 2 cr.

17. Poultry Breeds and Judging. The origin, history and classification of breeds. Theory and practice in judging fowls for egg production and exhibition and for intercollegiate contests. Mr. Tepper.

Required of juniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

18. Incubation and Brooding. The principles involved in incubation and brooding of poultry; embryonic development. Students individually operate incubators and care for groups of chicks. Mr. Charles.

Required of seniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

19. Poultry Marketing. The preparation of poultry and eggs for market. Egg qualities and grades, candling and packaging; egg and poultry market conditions; practical instruction in killing, picking and dressing. Mr. Tepper.

Required of all seniors in poultry. Elective for others. 2 lec.; 2 cr.

20. Poultry Feeding. The principles of feeding; analysis of recent experimental work and current feed problems. Each student will care for a group of birds for several weeks for practical observation and collection of data. Mr. Tepper.

Prereq.: Poultry husbandry 5. Required of seniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

21. Poultry for Teachers. For teacher preparation students only. Mr. Tepper.

Hours to be arranged. 2 cr.

22. Poultry Housing. Design and construction of poultry houses and equipment; costs of materials; management principles. Mr. Tepper, Mr. Charles.

Required of seniors in poultry. Elective for others. 1 lec.; 1 lab.; 2 cr.

23. Poultry Management. The application of successful business principles to poultry farming; study of surveys and production costs. As a part of the laboratory work, a detailed "three year" development plan of a poultry farm will be studied. Mr. Charles, Mr. Hess.

Prereq.: Poultry husbandry 5. Required of juniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

24. POULTRY PRACTICE. Practical work at the university poultry plant in the hatching, rearing and care of chickens. Mr. Charles.

Required of all juniors in poultry. Ten hours of practical work. 4 cr. (NOTE.—By permission, students with previous practical poultry experience may substitute 4 semester credits of electives for this course.)

25. POULTRY DISEASES. The anatomy of the fowl; diseases and parasites encountered in poultry practice; methods of prevention and control. Mr. Corbett.

Required of all seniors in poultry husbandry. Elective for others. 3 lec.; 1 lab.; 4 cr.

27, 28. POULTRY SEMINAR. Students abstract experimental data and report on various current poultry topics. Thesis required. Mr. Charles.

Required of all seniors in poultry husbandry. Elective for others. 1-hour conference; 1 cr.

53, 54. POULTRY PROBLEMS. Students are given a selection of various problems and are required to compile and present accurate and detailed information in their solution. Mr. Charles, Mr. Tepper, Mr. Corbett, Mr. Hess.

Required of seniors in poultry husbandry. Hours and credits to be arranged.

For courses primarily for graduate students, see catalog of the Graduate school.

PUBLICITY

The courses in publicity (communications, propaganda—courses which will assist one in mastering the technique of the dissemination of ideas) offered by several departments within the university are here grouped for the convenience of students who wish to elect work in this field.

Students who wish to extend their major programs with courses in publicity, or who wish to major in this field, should consult Professor Harold H. Scudder of the College of Liberal Arts.

COURSES OF DIRECT APPLICATION TO PUBLICITY

Public Speaking—English 35
Radio Speaking—English 39 (39)
News Writing—English 9, 10
Expository Writing—English 41 (41)
Free-hand Drawing—Architecture 37, 39, 40
Water color and modelling—Architecture 41, 42
Personal Use Typewriting—Secretarial Studies 5 (5) (required, but not to be used for major credit)
Photography 1 (1). Elementary Photography.
Grammar—English 19

COURSES IN SUBJECTS CLOSELY ALLIED TO PUBLICITY

Principles of Human Behavior—Psychology 11 (11)
Psychology for Students of Commerce—Education 33
Psychology of Advertising—Education 34
Psychology of Personnel—Education 36
Principles of Economics—Economics 1–2
Economic and Commercial Geography—Economics 4
Geography of North America—Geology 4
Citizenship—Government 1–2
Principles of Sociology—Sociology 1
Social Psychology—Sociology 2
American Society—Sociology 21, 22
The United States from 1790 to 1900—History 7–8
The History of England—History 21–22

SOCIAL SCIENCE

Social Statistics 51. A course primarily for the social science student designed to acquaint him with the place of statistics in the social science field and to bring out the significance of statistics as an instrument of research. The course will cover the meaning and interpretative use of the most commonly employed statistical symbols and terminology and the applications of these to the various social science fields. Those interested in mathematical statistics should take mathematics 61-62. Mr. Kichline and Mr. Bachelder.

3 lec. or lab.; 3 cr.

SOCIOLOGY

* Charles W. Coulter, *Professor;* Joseph E. Bachelder, Jr., *Assistant Professor;* Mason T. Record, *Instructor.*

1. Principles of Sociology. The underlying laws of human society, especially those governing the origin, growth and decline of institutions; group relationships to biological and geographic environments; social processes such as conflict, competition, imitation, accommodation, coöperation, assimilation and differentiation; societal isolation; culture, its organization, content, location and formation; social institutions including the familial, religious, economic, educational, recreational and political; social change with its attendant maladjustments, and social control. Mr. Bachelder and Mr. Record.

Open to all students. 3 lec. or rec.; 3 cr.

2. Social Psychology. The social aspects of personality, of the process whereby the individual's impulses are defined by the cultural patterns of the group, of the processes by which one acquires the social world in which he lives, and of the factors which determine attitudes,

* On leave, first semester, 1941–42.

wishes, habit systems, one's conception of himself and his social rôle. The methods utilized at present for the study of human nature critically discussed. Mr. Bachelder and Mr. Record.

Open to all students. 3 lec. or rec.; 3 cr.

21-22. American Society. A content course in educational sociology designed to acquaint the student with the nature and inter-relations of the institutions in democratic society. Especially adapted for sophomores and juniors who require a single survey course in the field of the social sciences. Mr. Coulter.

3 lec. or rec.; 3 cr.

53. Cultural Anthropology and Ethnology. (1) A comparative study of primitive folk-ways, institutions and social organization, marriage, economic activities, religion, property inheritance and folklore; culture and the principles of its development; the significance of primitive culture for an understanding of contemporary civilization. (2) A comparative study of peoples; environmental factors; societal effect of invasion, colonization and linguistic fusions; race and class struggles; jingoism, race relations in mid-European territory and in the Far East; the problem of world peace. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

54. The Immigrant and the Negro. Negro and immigrant heritage; problems of assimilation and Americanization. Intensive study of selected groups, the Negro, the Jew, the Italian, the Pole, the Greek, the French-Canadian and the Japanese. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

57. Rural Sociology. The foundation materials of rural life; the physical setting—land, land-policies, land-tenure; land-economics; farm and village population—its composition, its changes; the income basis of rural life, the standard of living; rural habits, attitudes; rural groupings, arrangements, the mechanisms of communication and social control; rural institutions with respect to welfare, sociability, education and religion. Mr. Record.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

60. Urban Sociology. The changes in community life that have come with the shift of population from rural districts; factors involved in the rapid growth of cities since 1800; physical structure of the city, processes of internal growth; the segregation which makes of the city a mosaic of distinct cultural worlds; increase in mobility which multiplies social stimuli; typical areas within the city—foreign colonies, rooming house districts, apartment and hotel areas, outlying areas of homes; the effect of the city upon community life, the family, church, school, unor-

ganized group behavior, attitudes and life organization of the person. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

61. Social Pathology. The social factors involved in alcoholism, blindness, deafness, sickness, illness, accidents, mental deficiency, mental disorder, drug addiction, prostitution, poverty, and vagrancy. The relation of personal, institutional, and community disorganization to social and individual pathologies. Remedial measures based upon a discussion of human nature and the physical conditions of modern life. Especially recommended for pre-medical, pre-legal, and other students who will be handling social variants in their professions. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

62. Community Organization. Town and country community organization with respect to natural and interest groupings; the survey; methods of analyzing problems of community organization; methods of utilizing institutions and equipment in the development of programs and organizations for health, recreation, general welfare, and control. Mr. Record.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

66. The Organization of Town and Country Life. A course given only for students in the Coöperative Hospital curriculum in Manchester. The meaning of community as a social unit; physical resources; economic basis; prevailing occupations; the community as a marketing center; traditional backgrounds and social changes producing present-day community structures; maladjustments arising from these changes; religious, educational, health, and recreational institutions; facilities for dealing with the dependent, the delinquent, and the physically and mentally handicapped; local government; contrast of urban and rural communities; methods of reducing maladjustment; community planning. Mr. Record.

This course is given at the Elliot hospital in Manchester. Hours to be arranged. 3 cr.

71. Crime and Its Social Treatment. The increase, extent and more popular theories of crime and delinquency, juvenile and adult. Case studies of individual delinquents with special reference to the influence of family and neighborhood environments; typical social situations and their influence; programs for the social treatment of crime, the reorganization of reformatory institutions, classification of offenders for separate treatment, the "honor system," limited self-government, parole and probation, and the juvenile court as agencies for the prevention of delinquency. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

72. The Family. The rise of the marriage institution and the family. Divorce, desertion, changing status of women, child welfare, child labor laws, and related modern problems. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

73. Principles of Social Case Work. The present trend in family case work; the techniques of interviewing, diagnosis, treatment and case recording; the significance of present day relief practices. Mr. Record.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

75. Methods of Social Research. The application of the historical survey, statistical and case methods to social data; the use of bibliography, definition and selection of the problem, determination of the data needed, collection and arrangement of data for presentation and exposition. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. (*See page 280.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61–62.

84. Methods of Social Progress. Efforts to improve social conditions and attain a larger measure of social justice; community experiments; development of modern social legislation; application of principles of insurance to social problems; various forms of mutual aid and philanthropy; endowments and special foundations. Mr. Coulter.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

87. The Church in American Society. Contemporary organizations for worship in the community, their correlation, functions, and problems; the rise of the church and its relation to labor, the state, school, social welfare agencies; significance to the community of its organization and financing; church federation and union. Mr. Coulter.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

88. Recreation and Leisure. Problems arising from the increase of leisure time in modern society; typical leisure time activities; theories of play; practical training programs in recreation; the function of leadership; analysis of types and qualities of leadership as exhibited by typical leaders; the material and program of leadership training. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

95, 96. Sociological Research. A workroom course for seniors who have had at least twelve hours in sociology and who have completed sociology 75. Research projects will be set up in conference with the

instructor and worked out individually or in groups by members of the class. Emphasis is placed on techniques of gathering data and on presentation of the findings. Mr. Bachelder.

Prereq.: Sociology 75. Hours to be arranged. 3 cr.

97, 98. SOCIAL SERVICE. Field work, designed to give the student an understanding of social work through observation and participation. Lectures, readings and conferences will be offered during the college year. The field work requirement may be satisfied either during the college year in coöperation with neighboring social agencies or during the summer by eight weeks work with other accredited social work institutions. The department will arrange for a limited number of student summer placements with well supervised settlements, correctional institutions and case work agencies in Chicago, Cleveland, Pittsburgh, Boston and other urban centers. It is strongly recommended that students who can qualify should acquire this experience in the summer following the junior year. In most cases agencies offer no remuneration beyond living expenses. Mr. Coulter and Mr. Record.

Prereq.: 12 credits of work in sociology. 3 cr.

SUMMARY OF REGISTRATION, 1940–41

College	Agriculture										Liberal Arts											Technology									Grand Total		
Regular Curricula (Classes)	General	Teacher Tr.	Poultry Husb.	Animal Husb.	Dairy Husb.	Forestry	Horticulture	Agric. Chem.	Entomology	Total	General	General Bus.	Pre-Med.	Home Econ.	Social Service	Secretarial	Hotel Admin.	Teacher Tr.	Physical Educ.	Coöp. Hospital	Total	Architecture	Chemistry	Civil Engr.	Elect. Engr.	Mech. Engr.	General	Total	Graduate	Summer School	Federal	Men	Women	Total
Senior	8	5	7	5	4	12	1	4	1	47	188	25	12	20	10	8	4	..	6	0	273	9	19	11	11	18	..	68	...	...	...	265	123	388
Junior	5	6	2	3	3	9	3	2	..	33	200	27	13	28	12	10	9	..	7	..	306	3	23	8	15	22	..	71	...	...	...	254	156	410
Sophomore	8	6	3	3	7	16	2	3	1	49	193	33	31	28	10	16	7	..	5	7	330	16	26	16	26	35	..	119	...	...	...	347	151	498
Freshman	6	4	8	8	4	12	5	4	..	51	219	21	29	34	6	12	8	2	9	17	357	8	37	19	29	33	1	127	...	...	...	340	195	535
Special	5	..	..	..	..	..	..	..	..	5	78	..	..	..	..	..	..	..	..	..	78	..	..	..	..	..	8	8	...	...	...	44	47	91
Graduate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	136	...	...	101	35	136
Total—regular cur.	32	21	20	19	18	49	11	13	2	185	878	106	85	110	38	46	28	2	27	24	1344	36	105	54	81	108	9	393	136	...	...	1351	707	2058
Two-yr. agr.—2nd yr.	31	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27	4	31
1st yr.	18	..	..	..	..	..	..	..	..	18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18	0	18
Total	49	..	..	..	..	..	..	..	..	49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46	3	49
Defense Courses—																																		
On Campus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	447	443	4	447
Navy Yard	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	133	133	...	133
Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	580	576	4	580
N. Y. A. Center	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	193	193	...	193
Summer School 1940	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	524	...	264	260	524
Total short cur.	49	..	..	..	..	..	..	..	..	49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	524	773	1079	267	1346
Grand total	81	21	20	19	18	49	11	13	2	234	878	106	85	110	38	46	28	2	27	24	1344	36	105	54	81	108	9	393	136	524	773	2430	974	3404
Less duplicates	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	101	...	70	31	101
Net gross total	81	21	20	19	18	49	11	13	2	234	878	106	85	110	38	46	28	2	27	24	1344	36	105	54	81	108	9	393	136	423	773	2360	943	3303
Totals 1939-40	99	33	14	17	14	59	7	12	6	261	866	146	77	94	32	45	20	7	36	8	1331	34	130	59	60	100	14	397	130	398	...	1617	900	2517

SUMMARY OF REGISTRATION, 1939–40

College	Agriculture									Liberal Arts									Technology								Grand Total		
Regular Curriculums (Classes)	General	Teacher Tr.	Poultry Husb.	Animal Husb.	Dairy Husb.	Forestry	Horticulture	Agric. Chem.	Entomology	Total	General	General Bus.	Pre-Med.	Home Econ.	Social Service	Secretarial	Hotel Adm.	Teacher Tr.	Physical Educ.	Coöp. Hospital	Total	Architecture	Chemistry	Civil Engr.	Elect. Engr.	Mech. Engr.	General	Total	Graduate	Summer School	Men	Women	Total
Senior	6	12	3	3	1	14	1	4	5	49	170	43	9	14	7	11	0	3	2	..	259	5	21	12	12	14	..	64	...	...	256	116	372
Junior	10	6	6	5	4	14	1	3	1	50	183	38	18	22	8	12	5	2	11	..	299	11	24	10	13	22	..	80	...	...	297	132	429
Sophomore	6	5	3	2	3	11	3	3	..	36	198	34	21	28	13	12	8	..	11	2	327	6	37	13	13	27	..	96	...	...	294	165	459
Freshman	11	10	2	7	6	20	2	2	..	60	248	31	29	30	4	10	7	2	12	6	379	12	48	24	22	37	5	148	...	...	403	184	587
Special	8	...	...	...	...	...	...	...	...	8	67	...	...	...	...	...	...	...	...	...	67	...	...	...	...	...	9	9	...	...	39	45	84
Graduate	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	130	...	87	43	130
Total—regular cur.	41	33	14	17	14	59	7	12	6	203	866	146	77	94	32	45	20	7	36	8	1331	34	130	59	60	100	14	397	130	...	1376	685	2061
Two-yr. agr.—2nd yr.	24	...	...	...	...	...	...	...	...	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24	...	24
1st. yr.	34	...	...	...	...	...	...	...	...	34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32	2	34
Total	58	...	...	...	...	...	...	...	...	58	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	56	2	58
Summer school 1939	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	516	...	272	244	516
Total short cur.	58	...	...	...	...	...	...	...	...	58	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	516	...	328	246	574
Grand total	99	33	14	17	14	59	7	12	6	261	866	146	77	94	32	45	20	7	36	8	1331	34	130	59	60	100	14	397	130	516	1704	931	2635
Less duplicates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	118	87	31	118
Net gross total	99	33	14	17	14	59	7	12	6	261	866	146	77	94	32	45	20	7	36	8	1331	34	130	59	60	100	14	397	130	398	1617	900	2517
Totals 1938–39	90	30	10	16	16	68	8	13	9	260	765	165	104	92	22	51	13	27	28	..	1267	28	121	51	64	100	4	368	118	369	1557	825	2382

SUMMARY OF REGISTRATION, 1938–39

College	Agriculture											Liberal Arts										Technology											Grand Total		
Regular Curriculums (Classes)	General	Teacher Tr.	Poultry Husb.	Animal Husb.	Dairy Husb.	Forestry	Horticulture	Agric. Chem.	Botany	Entomology	Total	General	General Bus.	Pre-Med.	Home Econ.	Social Service	Secretarial	Hotel	Teacher Tr.	Physical Educ.	Total	Architecture	Chem. Engr.	Civil Engr.	Electr. Engr.	Mech. Engr.	General	Total	Graduate	Summer School	Men	Women	Total
Senior	5	4	..	4	5	16	2	3	..	5	44	163	35	19	18	4	10	..	10	4	263	6	20	8	12	16	..	62	...	...	252	117	369
Junior	5	13	3	2	2	15	2	4	..	2	48	139	46	17	17	9	16	..	12	..	256	3	27	11	13	17	..	71	...	...	257	118	375
Sophomore	9	6	6	6	8	23	1	5	1	1	66	181	55	39	24	7	19	4	4	8	341	13	39	12	15	29	..	108	...	...	366	149	515
Freshman	9	7	1	4	1	14	3	1	..	..	40	226	29	29	33	2	6	9	1	16	351	6	35	20	24	38	..	123	...	...	319	195	514
Special	10	..	..	..	..	..	..	..	..	..	10	56	...	...	...	...	...	...	...	...	56	..	...	...	...	...	4	4	...	...	36	34	70
Graduate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	118	...	89	29	118
Total—regular cur.	38	30	10	16	16	68	8	13	1	8	208	765	165	104	92	22	51	13	27	28	1267	28	121	51	64	100	4	368	118	...	1319	642	1961
Two-yr. agr.—2nd yr.	12	..	..	..	..	..	..	..	..	..	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	...	12
1st yr.	40	..	..	..	..	..	..	..	..	..	40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40	...	40
Total	52	..	..	..	..	..	..	..	..	..	52	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	52	...	52
Summer school 1938	..	..	..	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	437	240	197	437
Total short cur.	52	..	..	..	..	..	..	..	..	..	52	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	437	292	197	489
Grand total	90	30	10	16	16	68	8	13	1	8	260	765	165	104	92	22	51	13	27	28	1267	28	121	51	64	100	4	368	118	437	1611	839	2450
Less duplicates	..	..	..	..	..	..	..	..	..	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	68	54	14	68
Net gross total	90	30	10	16	16	68	8	13	1	8	260	765	165	104	92	22	51	13	27	28	1267	28	121	51	64	100	4	368	118	369	1557	825	2382

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